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YAWS AND SYPHILIS.

CORDES (Wilhelm). **Syphilis and Framboesia among Haitian Laborers in Cuba, with Ten Illustrations.**—*Fifteenth Ann. Rep. Med. Dept. United Fruit Company, Boston, Mass.* 1926. pp. 156–164. With 10 text figs. [12 refs.]

Yaws, until last year, was unrecognized in Cuba in contrast with Haiti, where 100 per cent. of the rural population is affected, while in the towns syphilis is considered to be common. In 1926 all immigrant Haitians admitted to the Preston Hospital, Cuba, were specially examined. Of 156 (mostly men about 18 years of age) 114 or 73·1 per cent. showed more or less definite signs of yaws or syphilis. 79 gave a history of yaws in childhood of whom 65 still showed the scar of the primary lesion—48 on foot or ankle, 9 on leg, 4 on hand, 1 each scrotum, axilla, lip, forehead. All with positive histories save eight gave a positive Meinicke Test. Only 2 gave a history of syphilis. Clinical symptoms are recorded irrespective of which of the two diseases are concerned and therefore possess little value; the following may, however, be mentioned. Keratosis of palms and soles with depigmentation was seen; lesions of mucous membranes were rare; 1 case each of "specific angina" and perforated nasal septum, 1 saddle-nose and 2 destructive ulceration of the soft palate, but no case of gangosa, as such persons would not be allowed to emigrate. Three cases of juxta-articular nodules were observed and one patient showed a periosteal swelling on both sides of the nose resembling goundou, which is rarely encountered in Haiti.

H. S. Stannus.

BUTLER (C. S.) & PETERSON (E.). **Treponematosis as seen in the Rural Population of Haiti.**—*Jl. Lab. & Clin. Med.* 1927. Apr. Vol. 12. No. 7. pp. 670–678. With 1 map. [9 refs.]

The authors are among those who believe yaws and syphilis are one and the same disease, and use the term treponematosis as including both; they insist that the question "deserves to be looked at with historical perspective." They then mention some of the points of resemblance—morphological identity of *T. pertenue* and *T. pallidum*: parallel serum reactions: "the clinical course of yaws is identical with that of syphilis": "the specifics are the same in the two diseases": "the histo-pathology is identical in the two conditions." Reference is then made to papers published by one of the authors answering

" most of the minor objections brought up by the dualists," and some general remarks follow adducing evidence in favour or against the opinions and explanations of experimental work done by others, together with a discussion of the results obtained by sending out a questionary to naval medical officers in three districts in Haiti. [This paper will help to keep this interesting question under discussion, but it will do nothing to convert holders of one opinion to the other and they will not agree upon preliminaries such as some of the points of resemblance given above.]

H. S. S.

RAMSAY (G. C.). **The Origin of Yaws in Assam.**—*Trans. Roy. Soc. Trop. Med. & Hyg.* 1927. Apr. 27. Vol. 20. No. 8. pp. 506–511. [8 refs.]

Dr. Ramsay's investigations go to show that yaws among the coolies in the Assam tea gardens is contracted from the local hill tribes and that from this source POWELL's original case doubtless gained her infection and not from Ceylon. Ramsay has found the disease prevalent among the Kukis, Lushais and Nagas. These hill tribes state that yaws was prevalent among their ancestors. He thinks the disease was imported via Burma by invading tribes and that the Manipuri were subsequently infected ; it then spread to the Bengali settlers and tea garden coolies. The Manipuri distinguishes yaws from syphilis. A digression into the affinities of the Kuki and Naga tribes with suggestions of their ancient origins is of great interest and Ramsay is led to believe that it is with the negroid stock that yaws is linked, that yaws, an African disease, spread eastwards with the diffusion of negro blood.

H. S. S.

DA COSTA (Peregrino). **Yaws in Timor.**—*Far Eastern Assoc. Trop. Med. Trans. Sixth Biennial Congress, Tokyo, 1925.* Vol. 2. pp. 183–195. With 6 figs. on 1 plate.

Written in English the phraseology is rather difficult to interpret. Yaws appears to account for a third of the sickness among these islanders, more especially as secondary infections seem to be widespread. All the manifestations commonly met with in yaws elsewhere are mentioned. The author, however, goes further and attributes a form of myocarditis with sudden death to framboesia.

H. S. S.

TAKASUGI (S.). **Yaws in the Caroline and Marianne Islands.**—*Far Eastern Assoc. Trop. Med. Trans. Sixth Biennial Congress, Tokyo, 1925.* Vol. 2. pp. 179–181.

Yaws is stated to be widespread in these islands. Examining 71 cases of the disease histologically Dr. YATAKA ITEGAMI of Saipan found the following changes—In primary lesions : lymphocytic infiltration of the papillary, subpapillary and superficial cutaneous layers, accompanied by some plasma cells and fibroblasts, with irregular proliferation of the rete. The treponema is found in the epithelial layers and infiltrated zones, disseminated irregularly and in the lumina of minute blood vessels. In secondary eruptions oedema, mononuclear infiltration,

dilatation and new growth of blood vessels are described. Plasma cell proliferation occurs followed by histiocytes and fibroblasts. Proliferation of rete cells with irregular branching is said to be peculiar to framboesia. Superficial necrosis, leucocytic infiltration and abscess formation are seen. Tertiary changes were studied in the bone of a leg amputated on account of " spontaneous fracture of the tibia presumably due to yaws." The histological changes in bone and periosteum were analogous to those seen in syphilitic disease—" granulomatous inflammation leading to gummatous degeneration." Proliferation of epithelioid cells and giant cell formation were never seen.

H. S. S.

HASEGAWA (Munenori). Framboesia tropica auf der Insel Formosa und deren experimentelle Versuche an Affen. [**Yaws on Formosa. Experiments on Monkeys.**]—*Japan Jl. Dermat. & Urol.* 1927. June. Vol. 27. No. 6. German summary pp. 37–38. [12 refs.] [In Japanese pp. 469–488. With 10 text figs. 37 refs.] [Dermato-Urol. Clinic, Imperial Univ., Tokyo.]

Yaws, which is never observed in the islands of Japan, was first seen in Formosa in 1899. About the diagnosis of the three cases coming to the polyclinic between that date and 1902 there had been some doubt in the minds of many, but in 1912 WAKASUGI noted an undoubted case in a 2 year old native child in S. Formosa, and it was established that yaws was endemic in the eastern half of southern Formosa.

In 1926 the author while investigating skin diseases among natives found many cases of yaws in the mountainous area to the south at an altitude of 1,500–3,000 feet but none in the lower lying areas. Some 80 cases were seen including 3 cases of gangosa ; the disease is clinically identical with yaws elsewhere. The Wassermann and allied reactions were positive in all cases. Histological examinations of secondary lesions showed a chronic exudative inflammation, epithelial proliferation, plasma cell infiltration with round cell and leucocytic perivascular infiltration. A female monkey inoculated on the external genitalia developed a sore on the twenty-second day (with positive W.R.) which retrogressed fifty days later. When killed after eleven months findings were negative.

H. S. S.

BROCHARD (V.). Essai de suppression du " Pian " et des impotences fonctionnelles d'origine syphilitique dans les collectivités indigènes. [**The Suppression of Yaws and Syphilitic Disabilities in Native Communities.**]—*Bull. Soc. Path. Exot.* 1927. Mar. 9. Vol. 20. No. 3. pp. 209–213.

The author with 26 years' service in twelve French colonies believes that syphilis and yaws, leaving out for the moment sleeping sickness, are the two commonest diseases among native populations and refers to the high invalidity rate due to yaws and to the ravages of tertiary syphilis, any but tertiary disease being rarely seen. Believing that a single dose of acetylarsan, 6–7 cc., will cure the majority of cases of yaws, he advocates a regular campaign to treat all cases along those lines. There is nothing new in this paper, but one allusion is worthy of

note. He states that when he approached, during his district journeys, the border of the British colony of Sierra Leone whole villages led by their chiefs used to come across the frontier for treatment.

H. S. S.

LICHTENSTEIN (A.). **Rhinatrophia mutilans.**—*Geneesk. Tijdschr. v. Nederl.-Indië.* 1926. Vol. 66. No. 5. pp. 680–683. With 3 figs. on 1 plate.

The name Rhinopharyngitis mutilans is commonly applied to an ulcerative process with destruction of varying anatomical parts, in the advanced stage of which the nasal and pharyngeal cavities together with the mouth form a single irregularly shaped space, but the upper lip and the tongue are never affected. The disease is insidious in onset and is generally believed to be a manifestation of yaws. The author describes a case resembling in the final stage one of Rhinopharyngitis mutilans but during the course of the disease ulceration was absent. For such cases, apparently not so rare, he suggests the name ' Rhinatrophia mutilans.'

W. J. Bais.

LE BOURHIS. Une observation de Noma consécutif à des lésions pianiques des lèvres. [**Noma Consecutive on Framboesial Lesions of the Lips.**]—*Ann. de Méd. et de Pharm. Colon.* 1927. Jan.-Feb.-Mar. Vol. 25. No. 1. pp. 127–129.

A report on the case of a native child, two years of age, seen at Lomé (Togo) who, following the appearance one month before of a primary yaw in the pectoral region and secondary lesions eight days later on the forehead, chest, buttocks and right labial commissure, presented when seen a gangrenous ulceration involving the right cheek and adjacent parts of the lips with exposure of bone and necrosis; no fever. Treatment by neosalvarsan subcutaneously and local application of " pommade au néo " failed to effect improvement, the child dying five days later. Diagnosis: yaws and framboesial noma. [It is not quite clear what this diagnosis is intended to convey; as it stands, it would appear to suggest that the noma was framboesial in origin, whereas there is probably little doubt that the gangrenous ulceration was due to a secondary infection.]

H. S. S.

SHARP (N. A. Dyce). **Yaws—its Treatment as an Economic Problem in Africa.**—*Jl. Trop. Med. & Hyg.* 1927. Jan. 15, Vol. 30. No. 2. pp. 21–22.

On account of ease of administration for mass treatment and comparatively low cost, Dr. Sharp is a strong advocate of stovarsol in the treatment of yaws. Its use he considers safe and efficacious but he gives no figures or statistical results, and incidentally states that " experiments in East Africa carried out on a large scale and described by Dr. GILKS seem to show that bismuth has not justified its use in mass treatment " but gives no reference. He also states " In those large endemic areas where yaws most probably causes considerable *mortality* . . . . ", without producing evidence that any mortality from yaws occurs.

H. S. S.

VAN NITSEN (R.). Le stovarsol chez les enfants atteints de pian. [**Stovarsol in Yaws in Children.**]—*Rev. Méd. et Hyg. Trop.* 1927. May-June. Vol. 19. No. 3. pp. 87–89. [6 refs.]

After reviewing the varying dosage in which stovarsol has been used in the treatment of yaws in children by different workers in the tropics, the author comes to the conclusion that the amount necessary to effect cure varies with each case and does not depend either on age or weight of the patient, but chiefly on the time lesions have existed. He favours the method of VAN DEN BRANDEN who gives half to one gram daily until the total in grams equals the weight of the child in kilos.

H. S. S.

VAN NITSEN. L'action du stovarsol sodique dans le pian. [**Action of Stovarsol Sodium in Yaws.**]—*Rev. Méd. et Hyg. Trop.* 1927. Sept.–Oct. Vol. 19. No. 5. pp. 146–148.

The author reports favourably on the use of stovarsol-sodium in the treatment of yaws, given intravenously, at 48 hour intervals, in 0·5, 1·0 and 1·5 gram doses for first, second, third and subsequent injections up to a total of 9·0 grams for secondary cases and 10–15 grams for tertiary cases.

H. S. S.

SELWYN-CLARKE (P. S.). **On the Exhibition of Stovarsol (Acetyloxyaminophenylarsinic Acid) in the Treatment of Framboesia in the Ashanti.**—*Trans. Roy. Soc. Trop. Med. & Hyg.* 1927. Jan. Vol. 20. Nos. 5 & 6. pp. 373–375.

Reports good results in a small series of 21 cases in various stages.

H. S. S.

PARSONS (R. P.). **Bismuto-Yatren A and B in the Treatment of Yaws.**—*U.S. Nav. Med. Bull.* 1927. Jan. Vol. 25. No. 1. pp. 117–122.

The author reports the results obtained in treating 2 series each of 20 cases with the two compounds above mentioned. It is a little difficult, however, to follow his clinical allusions. "Except for two cases of secondary lesions" (face and body covered with secondaries: secondaries on face) "and four of primary lesions" (three on lip: "primary, either side of neck") "all of the cases had ulcers" and these in all but 3 cases were situated on the leg or foot, but no mention is made of their nature. They were apparently chosen so that the rate of healing could be estimated. The A compound is an aqueous solution of the sodium salt of bismuthyl-iodo-oxyquinolin-sulphonic-acid containing an equivalent of 10 mgm. metallic bismuth per 1 cc. The B compound differs only in being a quinine combination in oily suspension containing the equivalent of 36 mgm. of metal per cc. A is used intravenously or intramuscularly, B intramuscularly only. Results are stated to have been highly satisfactory. 1–2 cc. B and 2–3 cc. A as a dose at weekly intervals was the usual method adopted and a total of 2–17 injections given.

H. S. S.

PARSONS (Robert P.). **Treatment of Treponematous Ulcers with Bismuto-Yatren.**—*Amer. Jl. Syph.* 1927. July. Vol. 11. No. 3. pp. 425–431. [Haitian Gen. Hosp., Port au Prince, Haiti.]

Having had to give up the use of arsenicals for economic reasons and having found that sodium potassium bismutho-tartrate, which was next tried, was unsatisfactory in the treatment of ulcers of undifferentiated yaws and syphilitic origin, the author then studied a series of a hundred cases to whom bismutho-yatren was administered. The manufacturers recommend simultaneous administration of doses of "A" and "B" at 2–7 days interval. Such dosage, however, the authors found badly tolerated by their patients in Haiti, but with smaller doses at longer intervals "regarding therapeutic results it can be said without reservation that these were highly satisfactory." Healing took place in 2–17 weeks generally, according to the size of the ulcers, which measured up to 80 square inches. In a few resistant cases healing was rapidly effected by arsenicals and conversely some cases which had not done well with arsenicals responded to bismutho-yatren.

H. S. S.

BEDIER (E.) & VAN DAM TRINH. Au sujet du traitement du pian par le salicylate de bismuth en émulsion huileuse gaïacolée. [**Treatment of Yaws by Salicylate of Bismuth in Oily Emulsion with Guaiacol.**]—*Bull. Soc. Path. Exot.* 1927. Jan. 12. Vol. 20. No. 1. pp. 6–10. [3 refs.]

This communication reports upon the satisfactory results obtained in the treatment of yaws in Laos by the method advocated by LENOIR: two or three hypodermic injections at intervals of 3–4 days of a solution having the formula: Guaiacol 10 gm., bismuth salicylate 100 gm., olive oil to 1,000 cc.

H. S. S.

SCHOBL (Otto). **Some Factors in Treponematous Infection that influence the Result of the Wassermann Reaction. An Experimental Study.**—*Jl. Philippine Islands Med. Assoc.* 1927. Apr. Vol. 7. No. 4. pp. 122–125. [1 ref.]

This short paper gives the conclusions of the author in regard to the correlation of the strength of the W.R. with the clinical manifestations of experimental yaws in monkeys, without details or figures. Four factors were taken into account in this work: (1) The duration of the active infection; (2) the number of inoculations; (3) the number of takes; (4) the form of yaws lesion. A period of about two months elapsed between the actual inoculation and the beginning of the positive W.R. In monkeys inoculated for the first time, in whom only local yaws developed, the W.R. was of slight degree and became negative soon after spontaneous healing. In a simple initial local yaw the W.R. lasts not more than a month. If, however, the active infection be maintained by superinfection for over four months a strong W.R. is obtained. Its strength is directly dependent on the duration of the active infection. After the yaws infection has existed for seven months, the animals will no longer respond to reinfection, but the inoculation of material containing *T. pertenue* will produce a rise in the W.R. even though it has previous to the reinoculation become negative, due to specific treatment. The W.R. is proportional directly

to the number of takes and to the degree of generalization of metastatic yaws; also an intensive lesion accompanied by swelling and oozing and an enormous number of spirochaetes will produce a stronger W.R. than a feeble dry yaw with few organisms in it. Animals which developed extensive lesions were more completely immune and become so more rapidly than do animals with few lesions.

H. S. S.

HUNTSINGER (F. O.). **Experiments with Yaws Sera and the Kahn Precipitation Test.**—*U.S. Nav. Med. Bull.* 1927. Jan. Vol. 25. No. 1. pp. 135–136.

Fifty-five cases with an age range from 2½ to 61 years, half being males and half females, all with a history of yaws or manifestations of that disease, were submitted to the Kahn precipitation test. Judging from the results in this small series of cases this test offers no advantage in the differentiation between yaws and syphilis.

H. S. S.

IKEGAMI (Y.). [**Frambesia "Reinfection": Immunologic Study.**]—*Acta Dermat.* Kyoto, Japan. 1927. Mar. Vol. 9. p. 269. [Summarized in *Jl. Amer. Med. Assoc.* 1927. July 16. Vol. 89. No. 3. p. 251.

"A comparative study of the experiments with frambesia and with experimental syphilis, Ikegami says, shows that there is a difference in the mode of immunity in the two diseases. The reinfection comes out positive in syphilis only in the earliest stage of the infection, and becomes negative 100 days after infection. In frambesia, however, the reinfection comes out positive even 617 days after infection. The features presented in the two lesions in the reinfection are also different. In syphilis, the lesion due to reinfection is not in any way different from that of the first infection, although at times prolongation of the incubation period is encountered. In frambesia, the reinfection chancre is evidently milder, the incubation period being rather longer. The so-called true immunity is obtainable in the case of syphilis within from two to three months, while in frambesia the time required to produce true immunity is greatly prolonged, i.e., at least not less than twenty months."

H. S. S.

JAHNEL (Franz) & LANGE (Johannes). Ein weiterer Beitrag zur Frage der Immunitätsbeziehungen zwischen Framboesie und Syphilis: Eine gelungene Uebertragung von Framboesie aus Sumatra auf einen Fall von progressiver Paralyse. Vorläufige Mitteilung. [**Successful Transmission of Yaws to a Case of G.P.I.**]—*Muench. Med. Woch.* 1927. Sept. 2. Vol. 74. No. 35. pp. 1487–1488. [Municipal Hosp., München-Schwabing.]

When these authors on a previous occasion [this *Bulletin* Vol. 24, p. 305], published their results oninoculation of cases of general paralysis of the insane with strains of *Sp. pertenuis* obtained from Central America they had not lost sight of the fact that different strains might give different results. In the present communication they relate their experience in inoculating a typical case of G.P.I. aged 41 years with a strain obtained from Sumatra carried in a rabbit. One month after inoculation by the scarification method the earliest signs appeared, followed in two weeks by the formation of granuloma with scaly crust,

containing spirochaetes, thus leaving no doubt as to the positive result. The G.P.I. patient had four weeks before undergone a treatment by malaria inoculation. Further observations will be published later.

H. S. S.

STEINER (L.). Quelques mots à propos de l'article de MM. E. JEANSELME et O. ELIASCHEFF : contribution à l'étude de la structure des nodosités juxta-articulaires. [**J.A.N. Priority of Description.**]—*Schweiz. Med. Woch.* 1927. Apr. 23. Vol. 57. No. 17. pp. 395–396. With 1 text fig.

JEANSELME (E.). Réponse à la note de M. STEINER.—*Ibid.* pp. 396–397.

In these short notes Steiner claims to have described the condition known under the term juxta-articular nodules prior to JEANSELME, and Jeanselme contests the claim.

The name, juxta-articular nodules, also comes in for discussion. It is true they occur elsewhere than in the neighbourhood of joints, as the photograph by Dr. STEINER well demonstrates, but it is a convenient name now in common usage.

H. S. S.

PATANÈ (Carmelo). Seconda osservazione in Cirenaica di nodosità juxta-articolari in soggetto luetico. [**Second Case of J.A.N. in a Syphilitic in Cirenaica.**]—*Arch. Ital. Sci. Med. Colon.*, Tripoli. 1927. Jan. Vol. 8. No. 1. pp. 20–25. With 1 text fig. [4 refs.]

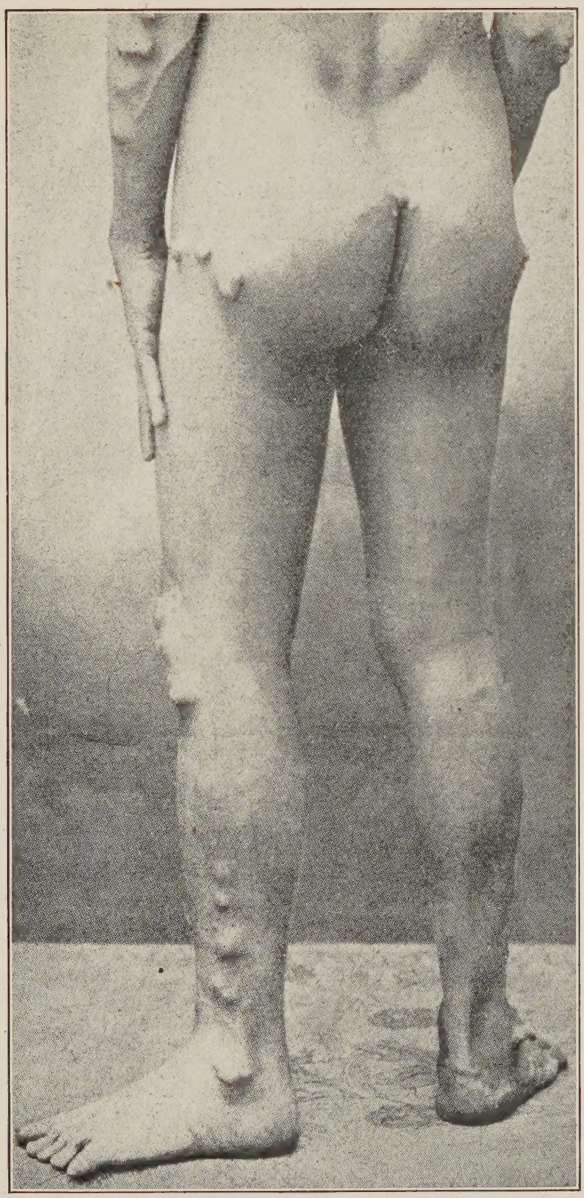
After mentioning the rapidly increasing numbers of cases of this affection put on record by French observers in Algeria and Morocco and the first cases reported from Tripolitania (ONORATA, 1924) and Tunisia (JAMIN, 1925), the author refers to the first case discovered in Cirenaica (by himself 1925) and then goes on to describe a second case : a native woman aged 38 years, denying syphilis ; in the left scapular region there was, however, a typical tuberculo-ulcerative syphilide which had existed for 8 years and the W.R. was positive. There were no other lesions save the nodules which occurred as a freely moveable rounded body lying in the subcutaneous tissue over each olecranon process. They were typical of the condition as usually described and had been first noticed five years before.

H. S. S.

AKOVBIAN (A. A.). K voprossoo " Nodosités juxta-articulaires Lutz-Jeanselme." [**Juxta-Articular Nodosities Lutz-Jeanselme.**]—*Pensée Méd. d' Usbekistane.* Tashkent. 1927. No. 8. pp. 30–37. With 1 text fig. [21 refs.]

The author gives an account of the literature on the subject and of different views concerning the etiology of this disease. He agrees with the opinion of others (especially JEANSELME in his latest publications) that these nodosities should be regarded as peculiar manifestations of late syphilis or yaws only.

He describes the cases of two adult females, with strongly positive Wassermann reactions, showing periarticular nodosities near the elbows. These patients had never left Central Asia and are the first



Illustrating Dr. Steiner's contention that juxta-articular nodules occur elsewhere than in the neighbourhood of joints.

[Reproduced from the *Schweizerische Medizinische Wochenschrift.*]

(K3416)

to be described in that region. Sections of the nodes show a structure similar to a syphilitic granuloma (especially the vascular changes), but there was a strong predominance of the connective tissue. In sections stained after Levaditi's method no spirochaetes could be detected. In the second case the nodosities disappeared after a course of anti-syphilitic treatment.

The author arrives at the conclusion that in Central Asia, where yaws is unknown, the periarticular nodosities must be regarded a sign of late syphilis only. The result of antisyphilitic treatment is satisfactory.

H. Lwow.

DA FONSECA (O.). Um typo particular de nodosidades juxta-articulares. [**A Peculiar Type of Juxta-Articular Nodules.**]—*Bol. Inst. Brasileiros de Sci.* Rio de Janeiro. 1927. Apr. 24. Vol. 2. No. 12. pp. 365–366.

The author records the case of a man, aged 43 years, living in Batatal, Rio de Janeiro, who showed small confluent nodules of the hip, knee, ankle, elbow and wrist, of an average diameter of 0·5–1 cm., the skin over them being smooth, shining, and of a pink colour. There were 15–20 at each joint. They first began to appear a year previously and were increasing in number. There was a history of syphilis acquired some 20 years earlier. The nodules were quite painless, but it is stated that the patient complained of " rheumatism in the limbs."

H. Harold Scott.

PALASKA (R.). [Les nodosités juxta-articulaires en Afrique du Nord (contribution à leur étude étiologique).] [**Juxta-Articular Nodules in North Africa.**]—*Thèse Fac. Méd.* Alger. 1926. [Summarized in *Bull. Inst. Pasteur.* 1927. Mar. 15. Vol. 25. No. 5. p. 212.]

The author in his thesis considers that J.A.N. are a definite entity—the result of infection with the treponema of syphilis or yaws—in Algeria of syphilis only, as yaws does not there exist.

H. S. S.

BERNARD (Raoul). Les nodosités des saillies osseuses. [**Nodosities of the Bony Prominences.**]—*Bruxelles-Méd.* 1927. June 26. Vol. 7. No. 35. pp. 1083–1086. [33 refs.]

A general survey of the subject for the information of medical practitioners who may not be familiar with the condition.

H. S. S.

CHESTERMAN (C. C.). **The Relation of Yaws and Goundou.**—*Trans. Roy. Soc. Trop. Med. & Hyg.* 1927. Apr. 27. Vol. 20. No. 8. p. 554.

Reports a case of goundou in a girl aged 12. The paranasal swellings had been noted for two years, and were associated with a proliferating periostitis of the mandible and sabre tibiae and a history of yaws four years before. This is the first case of goundou seen at the B.M.S. Hospital Yakusu, Congo Belge, in six years where four to five hundred cases of tertiary yaws are treated annually.

H. S. S.

MacGregor (I. Gregor). **An Investigation of Fifty Cases of Ganglion in Lagos.**—*West African Med. Jl.* Lagos. 1927. July. Vol. 1. No. 1. p. 6. [1 ref.]

The author reports fifty cases of ganglion about the wrist with positive Sachs-Georgi reactions treated by N. A. B., ·6 gm. weekly with total of 2·4 gm. In a number of cases the ganglia were multiple, in two the foot was also affected. In two cases juxta-articular nodules were also associated. No signs of yaws were present [history of yaws in the past not mentioned] but the author considers the affection to be a manifestation of that disease.

H. S. S.

Webb (W. Leslie) & Holliday (Margaret). **Signs and Symptoms in Late Syphilis in Buganda.**—*Trans. Roy. Soc. Trop. Med. & Hyg.* 1927. July 11. Vol. 21. No. 1. pp. 39–48.

In this communication the authors attempt to formulate conclusions in regard to the types of lesion due to late syphilis found among the Baganda. The figures given were obtained by analysing the data recorded in a card index of patients attending the Mulago Hospital for venereal diseases during the past five years. All doubtful cases and those without a positive W.R. were rejected, the diagnosis being made by a medical officer or in some cases among women by a nurse. The authors are aware of some of the fallacies which may be met with when dealing with natives but the statement is made that there is no doubt all the cases analysed—4,000 men and 3,711 women—were cases of syphilis, one reason for this statement being that "the infection rate of yaws is low and confusion between the late signs and symptoms of the two diseases is avoided in any degree likely to influence results." [With their knowledge of local conditions this statement may be correct, but the proof does not appear to be self-evident in the text.]

It would be impossible to deal in detail with the mass of statistics presented, but some of the figures given may be mentioned: "Simple ulcer forms the commonest single sign of late syphilis . . . they are often indistinguishable from non-specific ulcerations." There were 1,800 cases of simple ulcer unassociated and 510 cases associated with other manifestations of syphilis. [It is not quite clear what is meant by simple ulcer, as either they were gummatous ulcers, in which case they should not be designated "simple," or if truly "simple" they were not syphilitic.] These so-called simple ulcers are said to be "commonly associated with gummata and destructive processes," a statement not borne out by the table given, the *most* common associations being with bone pain 170, with gummata 73, with destructive processes [presumably also gummatous] 48.

Pains in the limbs and joints, worse at night, are described in 1,488 cases unassociated and in 622 associated with other signs. This symptom is stated to be "commonly associated with dermatitis, pain in the chest, and syphilis of the circulatory system, but rarely seen with destructive processes." [From the table the *most* commonly associated lesion would appear to be the simple ulcer above mentioned.] The pain in the chest is not further defined than to suggest that it is due to mediastinitis. Headache was also common.

"Gummata" were found unassociated in 238 cases, associated with other lesions in 149; a condition called *nungu*, hyperkeratosis of the feet and less often of the hands with fissuring and a variable degree

of ulceration in 318 cases alone and associated with other signs in 236. The associated sign is commonly (130 of 318 cases) a scaly rash of the palms and occasionally of the dorsum of the feet called *bikata*. Leucoderma of the hands and less often of the feet is perhaps the commonest sign of all in late syphilis, but has not always been recorded. [One is struck while reading this paper, by the fact that very similar observations have been recorded by other authors dealing with yaws. Are the observers in Uganda dealing only with syphilis? Are the observers in other areas only dealing with yaws? Where does the truth lie? This paper has a special value in showing how urgent is the problem of settling the relationship of yaws to syphilis.] Visceral syphilis was uncommon and almost entirely restricted to men: cirrhosis of liver 26 to 1, M. to F.; jaundice 2 to 0; ascites 10 to 2; splenitis 40 to 0; nephritis 4 to 0; anasarca 0 to 1; oedema 19 to 0. [These are clinical diagnoses.] "The figures for stigmata are low, particularly amongst a people with so high a congenital syphilis rate." [This the authors account for as due to death of the syphilitic infant, but no facts are produced as evidence of high rate of congenital syphilis, and high death rate.] Among nearly 8,000 cases keratitis was seen in 14 men and 3 women; saddle nose 11 and 0; fissured lips 2 and 0; Hutchinson's teeth 16 and 0; sword tibia 22 and 0. Syphilis of the nervous system is divided into what is headed "*intrinsic nervous syphilis*" and a group "which includes *all syphilis showing nervous symptoms probably following on lesions of the circulatory system.*" Under the first mentioned heading, there were 66 men and 17 women: paresis 14 : 0, paralysis 3 : 0, paraplegia 9 : 0, Charcot's joints 6 : 3, optic atrophy 1 : 0, optic neuritis 1 : 0, tabes (?) 1 : 0, Argyll Robertson pupil 1 : 0, etc. [an ill classified group]. In the second group are placed headache 91 : 254, hemiplegia 27 : 9, etc.

Under syphilis of the circulatory system one or two cases each of myocarditis, endocarditis, mitral and aortic disease, atheroma, aneurysm, endarteritis, arteriosclerosis, high blood pressure are mentioned.

[It is interesting to note that no mention is made of cases of goundou, gangosa or juxta-articular nodules. Records of long series of cases such as have presented themselves for treatment in Uganda are of great value. The authors have attempted to analyse a mass of data collected presumably by others. Their results lose very greatly from the fact that the data have been badly collected; there appears to have been a lack of appreciation of the pathological processes underlying many of the lesions described so that any proper classification has been impossible. This is no unkindly criticism. Everyone is well aware of the difficulties the busy medical officer has to meet on the clerical side but the authors will do a great service if using their paper as a text they point out the method whereby such statistics should be collected.

H. S. S.

Kirschner (L.). Over het voorkomen van Tabes dorsalis onder de Inlandsche (Soendaneesche) bevolking (met demonstratie van een film. [**Occurrence of Tabes Dorsalis in the Sundanese (with Demonstration of a Film).**]—*Geneesk. Tijdschr. v. Nederl.-Indië.* 1926. Vol. 66. No. 6. pp. 737–749. With 2 figs. on 1 plate. [17 refs.]

After reviewing the literature in which there is a consensus of opinion as to the rarity of this affection among Asiatics, the author records two

cases he met with among 3,800 native patients at a polyclinic and quotes a third reported by Dr. Roos van den Bergh. There was no doubt as to the diagnosis and neither had received adequate treatment for syphilis, thus lending no support to the theory of Mulder (this *Bulletin*, Vol. 23, p. 452) who considers the modern treatment of that disease as one of causes of the greater prevalence of parasyphilitic affections seen in natives during recent years. None of the patients belonged to the civilized class but two admitted alcoholic indulgence. Kirschner joins Engelhard in believing that many cases escape medical observation owing to their not seeking treatment. [An opinion at variance with the fact that no cases of tabes have been recorded in the indentured Javanese labour force on the east coast of Sumatra, numbering over 200,000 individuals under strict medical control.]

W. J. Bais.

Lombardo (C.) & Tornabuoni (G.). Ricerche sulla recettività del lama alla sifilide. [**On the Susceptibility of the Llama to Syphilis.**] —*Pathologica*. 1926. Dec. 15. Vol. 18. No. 422. pp. 586–589. [24 refs.]

Lancelotti and Jauregui stated in 1925 that the llama suffered from a disease in all respects identical with human syphilis, and that the condition was probably acquired by man from this animal. The authors, and others, inoculated 30 llamas in various parts of the body with syphilitic material from a primary chancre containing numerous spirochaetes, without producing anything resembling syphilis, nor did the serum of the animals give a persisting positive Wassermann reaction. Further, they could not confirm the report of good results following the injection of llama serum in cases of syphilis, and, in fact, hint that the latter idea was a clever stunt to place upon the market a curative serum for the disease (un più o meno abile bluff per lanciare commercialmente un siero per la cura della silide).

H. Harold Scott.

Blondin. Destruction de la face par lésions syphilitiques. Guérison par le 914 en lavements. [**Destruction of the Face by Syphilis. Cure by 914.**]—*Bull. Soc. Path. Exot.* 1927. July 13. Vol. 20. No. 7. pp. 696–700. With 2 text figs.

Brief notes of the case of a 15 year old native in Senegal suffering from destruction of the nose, upper lip and part of the cheeks due to syphilis which healed up under treatment by a course of 914, 0·15 gm. per dose given per rectum.

The interest of this observation, says the author, does not lie so much in the good result obtained as in the method of treatment adopted — one as useful as the intravenous method but little used.

[It is interesting to compare the excellent photograph of this syphilitic case with those of cases of gangosa considered to be due to yaws and note the points of difference.]

H. S. S.

JONES (Alfred E.). **Antimony and Potassium Tartrate in Chancroidal Infections. Results of Intravenous Treatment.**—*Jl. Amer. Med. Assoc.* 1927. May 28. Vol. 88. No. 22. pp. 1699–1700. [4 refs.]

By supplementing the local treatment of the conditions (cauterization, incision, drainage, phenol, alcohol, silver nitrate, iodine, etc.) with intravenous injections of a 1 per cent. solution of antimony potassium tartrate—3–10 cc. at four-day intervals—the duration of treatment was shortened by 50 per cent., 85 per cent., of 27 cases so treated giving excellent results.

H. S. S.

POWER (P.). **Toxic Effects of the Arsenobenzol Compounds.**—*Jl. Roy. Army Med. Corps.* 1927. Jan. Vol. 48. No. 1. pp. 46–51.

An article dealing collectively and in short with all the lesser and more serious complications which may occur with arsenobenzol therapy together with appropriate treatment. It is in convenient form and to the point, though, of course, there is nothing new to chronicle.

H. S. S.

HENDRIE (Helen McD.). Report from District of Yendi Northern Territories on Effect of Bismuth Tartrate in Treatment of Yaws as Noted in the District.—*Gold Coast Rep. Med. & San. Dept. for Period Apr. 1925—Mar. 1926.* Appendix D. pp. 59–60.

GRANULOMA VENEREUM.

MANSON-BAHR (Philip) & ANDERSON (S. M.). **On Ulcerating Granuloma of the Pudenda.**—*Brit. Jl. Ven. Dis.* 1927. Jan. Vol. 3. No. 1. pp. 12–23. With 5 text figs. [11 refs.]

The authors report in some detail five cases met with in the last four years and draw attention more particularly to the very varying amounts of antimony tartrate needed to effect cure, from 17½ to 179 grains in their several cases; to the necessity for injections being given in an uninterrupted series; to the even greater efficacy of von Heyden 471; to the advantages in some cases of local applications of 1 per cent. antimony tartrate in white vaseline left on for two hours at a time alternating with boracic ointment or eusol; to the use of thyroid by mouth.

The descriptions of the cases with photographs and differential diagnosis will serve to bring to the notice of medical men a condition which may, unless they are familiar with it, cause some trouble in diagnosis. There is also an interesting description of the pathological side, the authors believing, for reasons which they give, that the causal organism has not yet been demonstrated. Reference is made to the resemblance to ulcus molle serpiginosum, a condition which is found in countries outside the tropics.

H. S. Stannus.

SEQUEIRA (J. H.). **Ulcerating Granuloma.**—*Proc. Roy. Soc. Med.* 1927. Feb. Vol. 20. No. 4. pp. 346–347. (Sect. of Dermat. pp. 38–39.)

This case was shown at a clinical demonstration of the Section, but unfortunately there do not appear to have been any tropical practitioners present to discuss it.

Male, aged 36, with a history of soft sore 17 years previously, and of having been in South America in 1913. No history of syphilis and W.R. negative. A year ago had been in hospital " with ulceration on the inner side of the thigh extending to the knee." Under pot. iod. he got worse : with salvarsan there was no reaction, but ½ gr. doses sod. antim. tart. proved successful. Three months later he returned with an acute outbreak on shoulder and back which again has responded to antimony. Histologically, Dr. INGRAM describes the earliest appearance as a granuloma, but " later nothing but bags of pus " : no " Leishman Donovan " bodies. Blood culture negative while the early lesions yielded a staphylococcus and a diphtheroid bacillus non-pathogenic for animals. Dr. BARBER in discussion referred to a similar case from which a diphtheroid organism had been isolated by Dr. KNOTT which appeared to possess practically all the characters and reactions of a specific organism.

H. S. S.

GIBSON (E.). **A Case of Ulcerating Granuloma Venereum.**—*West African Med. Jl.* Lagos. 1927. July. Vol. 1. No. 1. p. 6.

A note of the successful treatment of a case as above described by stovarsol, 1–2 tablets by mouth daily and bismoxyl, 1 cc. subdermally once a week [the total amounts given not mentioned] after failure firstly with a full course of N.A.B. and mercurials, secondly with a full course of antimony tartrate.

H. S. S.

SARGENT (James C.). **Granuloma Inguinale. Report of a Case from Wisconsin.**—*Jl. Amer. Med. Assoc.* 1927. Apr. 30. Vol. 88. No. 18. pp. 1394–1395.

Writing from Milwaukee the author, who judges this condition to be rare in Wisconsin in spite of FRASER's assurance that it is very prevalent among the coloured races of the Cape province [this *Bulletin*, Vol. 22, p. 797], gives notes of a case in a negro male aged eighteen years. The diagnosis was made apparently on the beliefs that cancer in negroes is uncommon, cancer of the penis in a negro exceedingly rare and cancer of the penis in a negro boy less probable than G.I. The boy had, in fact, lain in hospital with " a sore " on the penis and in the right groin for two months diagnosed as epithelioma on the strength of the pathologist's reports on sections from the sores. The W.R. was ++++, but antisyphilitic treatment produced no result. After 10 intravenous injections of 10 cc. of 1 per cent. solution of antimony potassium tartrate the lesions were healed. When healing was completed smears and cultures were made ; in the direct smears cell inclusions thought to resemble Donovan bodies were seen in several large mononuclear cells. A slow growth was obtained on Sabouraud's agar. The organism isolated " was a non-motile, non-spore forming, non-capsulated gram-negative bacillus with a suggestion of formation of polar bodies."

H. S. S.

SIDLICK (D. M.). **Granuloma Inguinale of the Face and Mouth.**—*Arch. Dermat. & Syph.* 1927. June. Vol. 15. No. 6. pp. 703–708. With 2 text figs. [Refs. in footnotes.]

Reports the case of a coloured man of S. Carolina admitted to the Philadelphia General Hospital with lesions on the penis, in the perineum, in the groins and on the right cheek which had appeared in that order. The lesions were characteristic and scrapings showed Donovan bodies. W.R. negative. After six months treatment with 10 cc. doses of a 1 per cent. solution of antimony potassium tartrate intravenously every second

day, the lesions had mostly healed, the face only being refractory. He then left hospital returning six months later, the lesions having relapsed; in addition lesions consisting of flat topped papules with abraded surfaces or small ulcerations, yielding Donovan bodies, had appeared on the buccal mucous membrane. A second course of treatment failed, and a third course only appeared to have any influence after local treatment by roentgen ray. The palate was treated on fourteen different occasions, the time of exposure being five minutes with 4 milliamperes and a spark gap of 14 cm. The filtration used was from 0·5 to 1 mm. of aluminium and the focal distance 50 cm. The cheek was treated four times with the same technic except that the time exposure was ten minutes and the filtration 5 mm. aluminium. The penis and groins received ten treatments as above.

H. S. S.

JOURNAL OF LABORATORY & CLINICAL MEDICINE. 1927. June. Vol. 12. No. 9. pp. 929–931. [8 refs.]—**The Etiology of Granuloma Inguinale.** [R. A. K.]

An editorial note upon a disease which recent reports indicate is endemic in various parts of North and South America and is much more prevalent in the United States than is generally supposed. Reference is made to the uncertain etiology, and to the various organisms that have been described as obtained either by direct smears or cultivation—Donovan bodies, bacteria of the group of which *B. mucosus capsulatus* is the type, and another organism described by CORNWALL and PECK which in old cultures reproduces exactly the morphology of Donovan bodies, reproduces the disease in rabbits, which in turn give positive complement fixation tests and for which the name *B. venereogranulomatis* is proposed.

H. S. S.

MCGLINN (John A.). **The Treatment of Granuloma Inguinale with Tartar Emetic.**—*Amer. Jl. Obstet. & Gynecol.* 1926. Nov. Vol. 12. No. 5. pp. 665–672. With 7 text figs.

The author relates a series of cases of this affection in the female (with a good set of photographs) all among negroes, except two, met with at the Philadelphia General Hospital. The usual site of the initial lesion is the labium majus, but the entire vulva and groin may be involved with extension into vagina and destruction of the recto-vaginal septum. Reference is made to the mistakes in diagnosis before 1921. Donovan bodies were universally found in fresh smears in untreated cases and disappeared entirely after two or three treatments with tartar emetic; smears are but little contaminated by organisms usually present in the vulva lesions. Treatment was by means of 1/10 gm. tartar emetic dissolved in 10 cc. sterile salt solution intravenously at weekly intervals in ambulant cases or every second day in hospital cases. Severe rheumatic joint pains were a noticeable objection to this form of treatment and caused many patients to fail to persist in attendance for the series of injections found necessary to prevent relapse.

H. S. S.

HUTCHINSON (W. A.). **Granulomata treated with Intravenous Tartar Emetic. A Report of Five Cases.**—*Fifteenth Ann. Rep. Med. Dept. United Fruit Company, Boston, Mass.* 1926. pp. 131 134. [1 ref.]

Three cases of granuloma inguinale and two cases of dermal leishmaniasis treated successfully with tartar emetic are reported,

1 cc. increasing daily by 1 cc. up to 10 cc. of a 1 per cent. solution given daily. The only point of interest in the paper is the fact that healing was obtained in the first mentioned disease in two, two and four weeks respectively.

H. S. S.

THILLOT (M. Thierfelder). Blutstudien in Niederländisch-Süd-Neuguinea. [**Blood Studies in Dutch Southern New Guinea.**]—*Arch. f. Schiffs- u. Trop.-Hyg.* 1927. Feb. Vol. 31. No. 2. pp. 57–63.

In southern New Guinea venereal granuloma is so widespread that the author considers all adult males and females have had the disease. This great increase has occurred since 1910 and did much to impoverish the local stock. The blood picture in this disease shows no alteration from the normal for the local inhabitants, except in cases with gross secondary infections and in cachexia. A mild lymphocytosis and slight anaemia may be due to this affection and the eosinophilia found is probably due to ascaris infection.

H. S. S.

BERRI (J. C.). Un nuevo caso de granuloma venéreo con localización vulvar, perianal, inguinal e inguinocrural. [**Another Case of Granuloma Venereum involving the Vulvar, Perianal and Inguinal Regions.**]—*Bol. Inst. Clin. Quirúrg.* Buenos Aires. 1927. Vol. 3. Nos. 21–25. pp. 715–718. With 3 text figs. [Also issued as *3a Reunión Soc. Argentina Patol. Regional del Norte, Tucumán, Julio 7, 8 y 10, 1927.* pp. 607–610 & illustrations.]

The only noteworthy feature of this case is that the Wassermann reaction was positive and the condition was at first thought to be purely syphilitic. Treatment by antisyphilitic measures, however, led to but partial improvement. Tartar emetic was then given, starting with 5 cc. of a 1 per cent. solution. At the time of reporting, nine injections of this drug (the last four being 8 cc. each) had been administered and the lesion was nearly healed.

H. Harold Scott.

PUENTE (J. J.). Granuloma veneréo. [**Granuloma Venereum.**] *Bol. Inst. Clin. Quirúrg.* Buenos Aires. 1927. Vol. 3. Nos. 21–25. pp. 719–720. With 3 coloured figs. on 1 plate. [Also issued as *3a Reunión, Soc. Argentina Patol. Regional del Norte, Tucumán, Julio, 7, 8 y 10, 1927.* pp. 611–612 & illustrations.]

A few general remarks on the condition illustrated by three lurid and realistic coloured figures.

H. Harold Scott.

CLIMATIC BUBO.

HANSCHELL (H. M.). **A Note on Climatic Bubo.**—*Brit. Jl. Venereal Dis.* 1927. July. Vol. 3. No. 3. pp. 244–246. With 1 text fig.

In this short note the author records several interesting observations made at the Seamen's Hospital Venereal Clinic. The immensely greater prevalence of the bubo in warmer climates accounts for the term "climatic." Among his patients Hanschell shows that the affection is three times more frequent in engineer officers who work in

very hot and very moist atmospheres than among deck officers, while among forecastle hands, stewards and firemen the proportion is 1 : 1 : 2·5.

No case of the disease has been seen in eight years among Mohammedan Indian "lascars"—climatic bubo being very rare among the circumcised in contrast to the uncircumcised white man or Indian, the Negro and Mongol. [No statistics given.] Attempts to isolate a causal organism have failed.

The characteristic histological picture of "endothelial-cell-like proliferation" rather than round-cell infiltration the author finds inconstant.

The treatment advocated consists in : (1) Rest in bed ; (2) cleansing the preputial sac with alcohol ; (3) aspiration of any collections of pus ; (4) the intravenous injection of mixed typhoid vaccine—1, 2 and 3 millions bacilli at three to four day intervals.

H. S. S.

Frei (W.) & Hoffmann (H.). Experimentelles und Klinisches zum "Lymphogranuloma inguinale." I. Mitteilung. [**Lymphogranuloma inguinale, Experimental and Clinical.**]—*Arch. f. Dermat. u. Syph.* 1927. Apr. 23. Vol. 153. No. 1. pp. 179–199. With 2 coloured text figs. [38 refs.]

The authors have sought to show whether in this condition specific dermal reactions can be obtained. Of 32 cases of persons suffering from lymphogranuloma inguinale, including four women, using material aspirated from a gland, in 31 the result was positive. With vaccines of a pseudo-diphtheria bacillus positive reactions were commonly obtained and less often with a variety of other organisms. The antigen in the first cases was obtained by puncture of a softened but unruptured gland, diluted 5–10 times, heated for two hours on the first day and one hour on the second day at 60° C., the dose being 0·1 cc. injected into the upper arm—the reaction was best seen on the second day ; in controls the result was negative. In the second group of cases the diphtheroid organism was obtained from a bubo in similar fashion. Other organisms tested were two strains of *Staphylococcus albus*, a *S. aureus*, *B. coli*, etc., with varying results. Individual cases of lymphogranuloma inguinale gave positive reactions to many different organisms used as antigens. Attempts at animal infection by all methods of inoculation were practically negative, while bacteriological and clinical observations yielded no essentially new results. Treatment by tartar emetic, yatren and X-rays have not given satisfactory results. In a single case spontaneous cure was observed. The paper cannot be further summarized but attention is called to two very excellent coloured photographs.

H. S. S.

Bouffard. La lymphogranulomatose inguinale subaiguë. [**Subacute Inguinal Lymphogranuloma.**]—*Ann. de Méd. et de Pharm. Colon.* 1926. Oct.–Nov.–Dec. 1926. Vol. 24. No. 4. pp. 563–567.

The author saw among both European and native patients in the hospital at Abidjan, Ivory Coast, in 1925, many cases of climatic bubo. His clinical description and negative bacteriological findings do not differ from those of other observers, but he lays stress on

the fever accompanying the adenitis as characteristic of the earlier stage. At the same time he states that he has never seen a primary genital lesion and does not believe in a venereal etiology. He recommends conservative treatment and does not advocate excision or incision, but drains the inflammatory mass by inserting 7 or 8 " crins de Florence," and washes out existing cavities with alcoholic solution of iodine.

H. S. S.

DELBET (Pierre). Vaccinothérapie des poradénites. [**Vaccine Therapy in Climatic Bubo.**]—*Bull. Acad. Méd.* 1927. Apr. 5. Year 91. 3rd Ser. Vol. 97. No. 14. pp. 453–457.

In 1923 the author reported upon the success attending the treatment of this affection in three cases by a method of vaccination. Now two other cases having presented themselves for treatment, he has again followed the same treatment and reports remarkable results. The method employed consists in excising a convenient portion of the mass of glands which is then cut up into small pieces, dehydrated at 37° C. for 48 hours over calcium chloride emulsified in saline and injected [subcutaneously presumably] in increasing doses on alternate days, a total of five. Complete disappearance of other gland masses was obtained in 10 days in the first case. In the second case of five months standing with fistulae present, ten injections were given between February 9th and March 4th. Sixteen days after the first injection the masses had disappeared, the fistulae were closed and the wounds healed. The author is anxious others should try this method.

H. S. S.

WHITMORE (W. H.). **Climatic Bubo.**—*U.S. Nav. Med. Bull.* 1927. Jan. Vol. 25. No. 1. pp. 89–102. [14 refs.]

After a description of the disease such as is found in any text-book the author gives notes of some eleven cases coming under his own care. The paper contains nothing new.

H. S. S.

FAVRE (M.). Quelques remarques à propos de l'article de M. Robert Clément intitulé l'étiologie du granulome vénérien, adénopathie inguinale subaigue simple à suppuration intraganglionnaire. [**A propos a Paper by Dr. Clement on Climatic Bubo.**]—*Presse Méd.* 1927. Jan. 26. Vol. 35. No. 8. pp. 117–118.

Dr. Favre deals with the article by M. CLEMENT reviewed in this *Bulletin*, Vol. 24, p. 317. He criticizes in no uncertain measure an article which confused the two clinical entities known as granuloma venereum and climatic bubo.

H. S. S.

FREI (Wilhelm). Lymphogranulomatosis inguinalis. Strumöse Bubonen, klimatische Bubonen. [**Climatic Bubo.**]—*Klin. Woch.* 1927. June 4. Vol. 6. No. 23. pp. 1097–1103. [Numerous refs.]

An encyclopaedic article on climatic bubo with authors' references for all statements made.

H. S. S.

TROPICAL MYCOLOGY.

NANNIZZI (A.). [Ricerche sui rapporti morfologici e biologici tra Gymnoascacee e Dermatomiceti.] [**On the Relationship of the Dermatophytes to the Gymnoascaceae.**]—*Annales Mycologici.* 1926. Vol. 24. pp. 85–129. With 6 plates. [Summarized in *Bull. Inst. Pasteur.* 1927. Feb. 15. Vol. 25. No. 3. pp. 125–127.]

This work affords the first definite support of the theory of MATRUCHOT and DASSONVILLE as to the relationship of the Gymnoascaceae and the Dermatophytes. The author considers that the Dermatophytes, in the parasitic state or when growing in pure culture on the usual media, exhibit a kind of teratological aspect, resulting from the disturbing effects due to the nature of the medium, the irregular growth of the mycelium and the variation in form and dimensions of the various spores.

The saprophytic life of the Dermatophytes was demonstrated and studied by growing the species *Trichophyton granulosum, T. denticulatum, T. felineum, T. equinum, T. radiolatum, T. asteroides,* and *Microsporum lanosum,* on feathers, pelt of guineapigs, human hair, and bits of hide, kept dark and moist at ordinary temperature. *T. radiolatum* was grown on the corpse of a guineapig interred in a wooden box; and *T. asteroides,* inoculated on forest soil mixed with feathers and bones placed in a box in full light, was found in full production of aleuries and fusiform spores after six months.

T. asteroides, T. radiolatum, T. denticulatum, and *T. felineum,* were then grown in tubes on sterilized hide, feathers and hair, and were found to develop, under such conditions, globular organs considered to be pycnidia, corresponding to the peridia of the Gymnoascaceae, although they do not contain true ascospores but pycnospores. A comparative study of the following genera of Gymnoascaceae was made: *Ctenomyces* (*C. serratus*), *Arachniotus* (*A. candidus* and *A. aureus*), *Gymnoascus* (*G. reesii*) and *Myxotrichum* (*M. chartarum* and *M. uncinatum*). When grown saprophytically and on artificial media, they all form bunches of aleuries, fusiform chlamydospores and various other organs similar to those of the Dermatophytes. On very rich artificial media the peridium does not remain globular as in the saprophytic state, but spreads out and dissociates, and then closely resembles the cultures of certain Dermatophytes on artificial media. The author has also observed this phenomenon, which is very common in fungi which form perithecia, or sporodichia, in the genera *Volutella, Fusarium, Coremium* and *Coniosporium.* While the reproductive organs of these fungi, when returned to poor saprophytic media, resume their normal aspect, such is not the case with the Dermatophytes, which on artificial media give the dissociated forms, and in the saprophytic state on natural media give rudimentary perithecia. Analogous vegetative and reproductive organs common to both the Gymnoascaceae and the Dermatophytes are: racked-shaped cells, pectinate and spiral hyphae, nodular organs, aleuries, endoconidia, arthrospores, chlamydospores, fusiform spores, etc. Further, pleomorphism occurs in *Ctenomyces* as well as in various Hyphomycetes such as *Stemphylium, Alternaria,* and *Macrosporium* grown on artificial media rich in carbohydrates.

These results are considered sufficiently conclusive to justify the placing of the Dermatophytes in the Gymnoascaceae.

After a review of previous classifications, the Gymnoascaceae are divided into 3 sub-families: *Eugymnoasceae* Nannizzi, 1926, with the genera

Myxotrichum Kunze, 1823, *Amaurascus* Schroeter, 1893, *Gymnoascus* Baranetsky, 1872, *Ctenomyces* Eidam, 1880, *Arachniotus* Schroeter, 1893, and *Eidamella* Matruchot and Dassonville, 1901; *Nothogymnoasceae* Nannizzi, 1926, with the two genera *Myxotrichichella* Sacchardo, 1892, and *Ateleothylax* Ota and Langeron, 1923; and *Atelogymnoasceae* Grigoraki, 1924, with the genera *Trichophyton* Malmsten, 1884 (em. Ota and Langeron, 1923), *Sabouraudites* Ota and Langeron, 1923, *Bodinia* Ota and Langeron, 1923, *Endodermophyton* Castellani, 1909, *Grubyella* Ota and Langeron, 1923, and *Epidermophyton* Lang, 1879 (em. Ota and Langeron, 1923). The species in which he found pycnidia, *Sabouraudites asteroides*, *S. radiolatus*, *Trichophyton denticulatum*, and *T. felineum*, are put in the genus *Ateleothylax*.

P. Tate.

de Magalhães (Octavio) & Neves (Aroeira). [In Portuguese & English.] Ensaios de mycologia. (Contribuição para o estudo dos cogumelos em Bello Horizonte). **Essays on Mycology: (Contribution to the Study of Fungi in Bello-Horizonte).**—*Mem. Inst. Oswaldo Cruz.* 1926. Vol. 19. No. 2. In Portuguese pp. 245–283. With 63 figs. (1 coloured) on 36 plates. In English pp. 285–322. [Refs. in footnotes.]

In the course of the investigation the following fungi were found: *Endomyces albicans*, common in the saliva of children. *Oidium braziliense*, not uncommonly found associated with tuberculous-like lesions of the lungs. *Malassezia furfur*, in about 16 cases of pityriasis versicolor. *Aleurophora benigna*, n. sp., causes a benignant skin disease and is related to, or possibly identical with, Malassezia. In all of 30 cases of Sporotrichosis the parasite was *Sporotrichum beurmanni*. *Epidermophyton inguinale* was isolated from 4 of 8 cases of eczema marginatum. *Trichophyton equinum* Matruchot & Dassonville, was found in a case of ringworm of the beard. Microsporums were found in 24 cases: *M. lanosum* in 18; *M. audouini* in 5; *M. felineum* in 1. *Achorion schonleinii* was found in 4 cases of favus: and *A. gallinae* was found in favus of the fowl. Six cases of blastomycoses were also met with.

P. T.

Brocq-Rousseu, Guilliermond & des Cilleuls (L.). Etude d'un champignon pathogène du genre *Monilia*. [**On a Pathogenic Monilia.**—*Ann. Parasit. Humaine et Comparée.* 1927. Jan. 1. Vol. 5. No. 1. pp. 48–62. With 5 text figs. [4 refs.]

A fungus was isolated from the sputum of a patient admitted to hospital with bronchitis, bad general health and a temperature of 37·2°. His condition became worse, breathing became difficult, pulse rapid, temperature 40·9°, and clinical signs of pneumonia of the right lung developed. There was copious expectoration of non-foetid sputum in which the Koch bacillus could not be found; but numerous hyphae were present. The patient was then treated with potassium iodide for 20 days and was completely cured.

On Sabouraud's medium the fungus forms thick, white colonies with punctiform edges. In beerwort the optimum temperature is 30–40°, and at first the growth consists almost entirely of yeast cells; later simple or branched hyphae, which sometimes bud, are developed and giant cells are frequently found. Asci are not developed. Saccharose is inverted, and maltose, dextrose, levulose, mannose and dextrine are fermented

to a decreasing degree. Galactose, lactose and raffinose are not attacked, and amylase is not secreted. Gelatine is liquefied, and milk is coagulated in 12–15 days and the clot later digested, but the colour of litmus milk is not changed. It grows aerobically or anaerobically, is killed by a temperature of 55° for 15 minutes, and grows on a medium containing 30 per cent. of potassium iodide, but is killed by 35 per cent.

The fungus is placed in the genus *Monilia* and is regarded as a new species as it cannot be identified with any of those previously described. Intravenous injection of rabbits and guineapigs is fatal in about a week and recultivation of the fungus is possible from the blood of the heart.

P. T.

Shaw (Frederick W.). **A Monilia from the Respiratory Tract.**—*Jl. Lab. & Clin. Med.* 1927. July. Vol. 12. No. 10. pp. 968–972. With 6 text figs. [4 refs.]

A monilia, which is considered to be a new species and is named *Monilia richmondi*, was isolated from the sputum of a coloured woman suffering from a pulmonary affection suggestive of tuberculosis. The tubercle bacillus was not found in the sputum by direct examination or by guineapig inoculation. The fungus occurred as whitish granules of matted hyphae and yeast cells in the sputum.

Intraperitoneal inoculation of rabbits and guineapigs was negative; but when injected into the circulatory system of rabbits death, following tetanic convulsions, occurred about the fifth day, and the kidneys, liver, stomach wall and omentum were studded with small whitish granules from which the fungus could be recultivated. Intracardial inoculation of guineapigs produced similar results, as did intrapulmonary inoculation of a rabbit, but in this case there was first caseation and necrosis at the point of inoculation.

P. T.

de Smidt (F. P. G.). **A Type of Monilia in a Case of Suspected Pulmonary Tuberculosis in a European.**—*Kenya Med. Jl.* 1927. Jan. Vol. 3. No. 10. pp. 272–274. [3 refs.]

A new *Monilia*, *M. kenyaensis*, was isolated from the sputum, in which the tubercle bacillus could not be found, of a patient whose condition simulated pulmonary tuberculosis. A brief morphological and biochemical description of the organism is given. Animal inoculation was negative.

P. T.

Wallace (G. I.) & Tanner (F. W.). **An Etiological Agent in Bronchomycosis.**—*Amer. Rev. Tuberculosis.* 1927. Mar. Vol. 15. No. 3. pp. 373–379. With 4 figs. [13 refs.]

A fungus closely resembling *Monilia albicans* was isolated from the sputum of a case of suspected tuberculosis in which no acid-fast bacilli could be found. The fungus is not pathogenic for experimental animals. Treatment with potassium iodide greatly improved the patient's condition.

P. T.

Niño (Flavio L.) & Puglisi (Alfio). Moniliasis bucal. Su estudio clinico y micológico. [**Buccal Moniliasis.**]—*Semana Méd.* 1927. Jan. 27. Vol. 34. No. 4 (1724). pp. 222–229. With 9 text figs. [8 refs.]

A girl, 7 years of age, came to hospital with a history of having suffered for 5 months with a condition which was diagnosed as "thrush." Treatment with potassium chlorate and mouth-washes proved ineffectual; iodine in potassium iodide was better, but cure was rapidly obtained by injections of iodized oil (aceite yodado). Cultivation of the deposit showed it to be a Monilia and animal inoculations were made into a guineapig, a white rat and a rabbit, the two former intraperitoneally, the last in the marginal vein of the ear. In the guineapig and the rat a small nodule arose at the site of inoculation, but soon disappeared. The rabbit died 40 hours after inoculation and the mould was found in the kidneys. The authors regard the fungus as a new species which they name *Monilia buccalis*.

A note is added to the paper saying that the child had had a return of the condition.

H. Harold Scott.

Garcia (O.), Garcia (Cecile), Boyce (Nancy) & Broun (G. O.). **Bacteriological Characteristics of Monilia found in Pernicious Anemia and certain other Pathological Conditions.**—*Proc. Soc. Experim. Biol. & Med.* 1927. Mar. Vol. 24. No. 6. pp. 497–500. With 1 chart in text. [4 refs.]

Wood recently suggested the possible relationship between Monilia and pernicious anaemia, and reported that he had isolated *M. psiliosis* from the stools of some patients. The present paper deals wtih the bacteriological characteristics of strains of Monilia which the authors isolated from 9 out of 10 cases of pernicious anaemia, and compares them with a large number of other strains, some of which are ordinary saprophytes and others are strains which have been isolated from cases of affections such as diarrhoea, bronchitis, thrush, etc. In all, 50 strains were studied, all of which, except one, gave similar growth on French [Sabouraud's] proof agar. According to the manner of growth on gelatine the strains are of three types: first, grow only along the stab and do not liquefy the gelatine; second, do not liquefy the gelatine but send mycelial extensions into it giving the inverted pine-tree appearance; and, third, those which liquefy the gelatine. Four of the pernicious anaemia strains are of the first type, and the remaining 5 are of the second type. Fermentation tests were made with 14 different sugars, and, on the basis of acid production or not in the various sugars, the strains fall into 8 general groups.

P. T.

Zeisler (Erwin P.). **Monilia Infection of the Tongue.**—*Arch. Dermat. & Syph.* 1927. Feb. Vol. 15. No. 2. pp. 171–185. With 9 text figs. [13 refs.]

Monilia pinoyi was isolated from a case of exanthem of the tongue, consisting of narrow, branched, slightly raised white lines on the dorsum and sides. The patient, a female aged 56, had bad general health with a diagnosis of polycythemia vera. The organism was pathogenic for rabbits and increased in virulence on passage through animals, first

causing death in 3–5 days, and later in 24 hours. The kidneys were the organs most affected and showed multiple miliary abscesses. Recultivation from the blood of the heart, the liver and the kidneys was possible.

Scrapings from another case of an infection of the lips and tongue showed yeast cells and mycelium. Cultures of mixed bacterial and fungus growths were obtained, from which a Cryptococcus and a filamentous fungus were isolated, but neither was pathogenic for rabbits.

P. T.

Montpellier (J.) & Catanei (A.). Sur une glossite observée à Alger. Etude du champignon présent au niveau des lésions. [**On a Glossitis observed in Algiers.**]—*C.R. Soc. Biol.* 1927. May 20. Vol. 96. No. 16. pp. 1278–1280. [1 ref.]

A glossitis of distinct clinical type was observed in Algiers in a European aged 40 whose general health was good. It was of five years' duration and did not yield to six months' treatment with arsenic, bismuth, mercury and potassium iodide.

Numerous branched, septate hyphae, 3–5μ wide, and some ovoid cells 4–6μ in diameter were present in pellicles removed from the lesions. From the lesions a Monilia was cultivated, which differs morphologically from *M. albicans*, but closely resembles an organism recently isolated by the authors from a typical case of " thrush " and from a superficial glossitis. [*C.R. Soc. Biol.* Vol. 95. pp. 568–569 ; this *Bulletin*, Vol. 24, p. 320.]

P. T.

Panayotatou (Angelique). Sur une " Mycose " isolée de la langue d'un malade. " Penicillium linguae (genre Scopulariopsis)." [**On** " *Penicillium linguae* " **isolated from a Case of Mycosis of the Tongue.**]—*Cent. f. Bakt.* I. Abt. Orig. 1927. Jan. 3. Vol. 101. No. 4–5. pp. 231–235. With 6 text figs. [1 ref.]

A fungus, regarded as a new species, " *Penicillium linguae* " (*Scopulariopsis*) Panayotatou 1926, was isolated from a thick, dark brown, folded plaque on the tongue of a native child of Egypt, aged 2. Yeast cells were present in the scrapings and, on Sabouraud's medium, cultures, at first downy white, later greenish and finally brownish, thick and folded, were obtained.

Inoculation of guineapigs was negative. Subcutaneous inoculation of a rat led to death in a few hours, but the fungus was not found in the organs, although recultivation from the blood of the heart was possible.

P. T.

Jones (E. Lloyd). **Torula Infection of the Naso-Pharynx.**—*Southern Med. Jl.* 1927. Feb. Vol. 20. No. 2. pp. 120–125. With 4 text figs. [25 refs.]

This infection, consisting of large destructive lesions of the nose and throat, was provisionally diagnosed as of syphilitic origin, and, later, as lupus. The presence of yeast cells in material obtained by biopsy, and the cultivation of a yeast from the interior of the nodules present in the

throat, resulted in a final diagnosis of "Torulosis." Anti-syphilitic treatment resulted in rapid breaking down of the affected tissue; application of ultra-violet rays was ineffective; administration of iodides led to rapid necrosis; but the application of the roentgen ray in dosage to stimulate fibrous tissue formation led to notable improvement and the infection is at present in an arrested condition.

P. T.

DUARTE (João Galdino). Mycose pulmonar pelo "Oidium Brasiliense." [**Pulmonary Mycosis due to** *Oidium brasiliense.*]—*Brasil-Medico.* 1927. Feb. 12. Vol. 41. No. 7. pp. 131–135. [1 ref.]

The patient was a man of 23 years with good family and personal history till some two months before he came under the author's observation. He was pale, emaciated, and had a troublesome cough with expectoration. Examination for tubercle bacilli and for syphilitic infection proved negative, but *Oidium brasiliense* was found in the sputum and a positive Bordet-Gengou reaction was obtained with this as antigen.

Treatment by iodide of potassium in doses of 2, 4, and up to 8 gm. in the day, taken by mouth, the total amount being 32 gm., resulted in speedy cure.

H. Harold Scott.

DA FONSECA (O.) & LEÃO (A. E. de Arêa). Sobre o granuloma coccidioidal. Fórmas de evolução nos tecidos, no pus dos ganglios lymphaticos e nas culturas do "Coccidioides immitis." Posição systematica do parasito. [**Coccidioidal Granuloma. Developmental Forms in the Tissues, the Pus of Lymph-Glands and in Culture. Systematic Position of** *Coccidioides immitis.*]—*Bol. Inst. Brasileiro de Sci.* Rio de Janeiro. 1927. Feb. 25. Vol. 3. No. 2. pp. 21–24.

European blastomycoses differ entirely from those seen in Brazil, not only in the characters of the parasite, but in the clinical features of the disease they set up.

The fungus in the authors' case [no information is given as to the case itself] grew on ordinary media, as well as on Sabouraud's, best between 25° and 30° C. The first colonies appeared after three weeks and were small, ashy-grey and smooth, and on them aerial hyphae produced a growth like cotton. The colonies are composed of septate mycelial filaments. On ordinary agar they give a dirty yellow growth easily separable from the medium. In broth, the growth falls to the bottom, leaving the liquid clear. The original elements consist of rounded forms with a doubly-contoured periphery, 5–80 microns in diameter, and reproducing by endogenous sporulation.

The parasite proved to be identical with that discovered in the Argentine in 1890 and described later by RIXFORD and GILCHRIST in America under the name *Coccidioides immitis*. The author regards it as belonging to the Family Protomycetaceae and closely allied to the Ascomycetes, and suggests that some of these may pass beyond the phytoparasitic stage and in man set up the condition known as blastomycosis.

H. Harold Scott.

TROPICAL DERMATOLOGY.

LINDBERG (K.). Aperçus dermatologiques dans le nord de l'Inde anglaise. [**Dermatological Notes on the North of British India.**]—*Rev. Méd. et Hyg. Trop.* 1927. Sept.–Oct. Vol. 19. No. 5. pp. 129–135. [5 refs.]

This article contains a very brief survey of some dermatological conditions among the natives of India compared as regards their clinical appearances and incidence with those seen at home. The common skin affections of Western Europe are in a minority in India where parasitic dermatoses predominate. The large and seasonal incidence of fungus infections is ascribed to maceration of the skin by excessive sweating in the humid climate. The prejudicial aversion of the native to vitiligo lesions is mentioned.* More detailed reference to tinea cruris, tropical ulcer and prickly heat is made. The lesions of tropical ulcer require thorough curettage before applying any local dressing such as a powder of ac. boric. 3 parts, iodoform 1 part. The etiology of prickly heat is not yet clear.

W. Jenkins Oliver.

HASEGAWA (M.). Ueber die Dermatomykosen in Formosa mit besonderer Berücksichtigung ihrer Erreger. [**Dermatomycoses in Formosa.**] —*Japan Jl. Dermat. & Urol.* 1927. Feb. Vol. 27. No. 2. German summary pp. 7–10. With 8 figs. on 3 plates (1 coloured). [In Japanese pp. 1–152. With 36 text figs.]

One hundred and twelve cultures were obtained from 203 cases:—92 from trichophytoses (160 cases), 27 from favus (37 cases), and 3 from tinea imbricata (6 cases). The fungi found in the various kinds of trichophytoses were: *Microsporum japonicum* Dohi and Kambayashi 42, *Trichophyton violaceum* Bodin 35, *T. coccineum* Kato 6, *T. radiolatum* Sabouraud 7, *T. interdigitalis* 1, and *Epidermophyton inguinale* 1. Thus, although the southern half of Formosa is in the tropical zone, the clinical aspect and the parasites of the prevalent ringworms agree with those of other parts of Japan.

Favus is widely distributed among the natives of the west coast, and 37 cases of favus of the head were found among native school children. Nine were due to *Achorion Schönleinii*, and 18 to a new species named *Achorion formoseum* (or *Grubyella formosense* according to LANGERON & OTA'S classification). The scales produced by this species are peculiar in being usually greyish white, but typical yellow favus scales are also found. Diseased hairs are dull and easily pulled out, but do not break off. Chains of small roundish spores 3·5–4 microns in diameter run longitudinally in the hair extending into the part projecting beyond the follicle and deep into the bulb. Spores and undulating hyphae 3–4 microns wide are present in the scutula. Cultures on Sabouraud's glucose agar are first clear yellow and moist, but become brownish in a couple of weeks. The part above the medium is irregularly folded and the submerged part radiates in a root-like manner. After a couple of

* It is stated that young persons with depigmented patches, whether visible or not, are not acceptable by either side as marriage partners, and that such patches are attributed to leprosy which is considered by the Hindus to be punishment for particularly heinous sins committed in a previous existence. [Ed.]

months white patches appear on the surface and later develop into a white down. The mycelium is branched and septate and forms chlamydospores, intercalary and pediculated ; chains of small spores ; " chandeliers faviques " ; nodular organs ; non-fertile sporiferous hyphae ; and yellow bodies of Kralschen. It is easily inoculable to rabbits, but not to mice, dogs or monkeys.

From tinea imbricata 3 cultures were obtained, all being easily inoculable on human skin. The cultures resemble *Endodermophyton tropicale* Castellani.

P. Tate.

Acton (Hugh W.) & McGuire (C.). *Tinea cruris* : **its Manifestations, Diagnosis and Treatment.**—*Indian Med. Gaz.* 1927. Aug. Vol. 62. No. 8. pp. 419–428. With 8 plates (2 coloured). [Sch. Trop. Med., Calcutta.]

A well illustrated communication containing a useful detailed account of the disease as seen in India. Difficulty in diagnosis would seem to depend upon the frequent secondary pyogenic infection and the trouble involved in the detection of the fungus, preparations in 40 per cent. potash often requiring 24 hours' clearing for its definition. Infection occurs where the epidermis is thinnest, especially the cleft between the 4th and 5th toes. The conditions necessary for infection relate to moisture, warmth and friction. Children do not usually suffer. The nails of the fingers are more commonly affected than those of the toes, probably as a result of scratching. " Tinea cruris never extends above the neck on to the face although it may attack any other part of the body." A secondary streptococcal infection is the commonest complication. This may occasionally lead to a cellulitis or sometimes to a generalized condition with the appearance of an exfoliative dermatitis. These cases are frequently a mixture of streptococcal infection and arsenical dermatitis following treatment for supposed syphilis. Secondary staphylococcal infection is frequent, while among natives secondary contamination with *B. tuberculosis* may give rise to warty lesions.

In describing the cultural characteristics of the Epidermophyton, it is asserted that the colour variations of the cultures are due to substances in the media and not to varieties of species. Treatment in the acute stages with secondary infection and bullous or vesicular lesions consists in the frequent application of calamine lotion (allowed to evaporate) during the day and a 1–2 per cent. mercurial ointment at night. For those cases showing a marked staphylococcal infection acriflavine solution 1 : 1000 is recommended. As soon as the lesions are dry, Whitfield's ointment is advised. In mango toe, with great thickening of the skin in the interdigital clefts, the affected area may be painted with Resorcin 1 drachm in Tr. Benzoin Co. 1 oz. This is to be applied at night, but requires careful observation and control. Chronic cases, which do not react to ointments, etc., are benefitted by X-rays, both filtered and unfiltered, frequently in fractional doses. To prevent infection or reinfection after cure a sulphur camphor dusting powder is recommended for application to the feet and groin on alternate days with a simple absorbent powder, for the purpose of keeping these regions dry.

W. J. O.

Smith (E. C.). **Dermal Moniliases among Natives of West Africa.**—*Trans. Roy. Soc. Trop. Med. & Hyg.* 1927. Aug. 31. Vol. 21. No. 2. pp. 125–130. With 21 figs. on 8 plates. [8 refs.] [Med. Research Inst., Lagos, Nigeria.]

The clinical appearances of the disease are described and the clinical resemblance to those of ringworm infection is noted. The scrotum is the area most frequently affected and shows all variations in appearance, from merely a white dry fluffy scaling of the skin to an exfoliative eczematous condition. On the trunk and limbs the lesions may appear as psoriasiform patches, as irregular shining macules resembling creased silver paper, as impetiginous lesions or as eczematoid dermatitis. Differentiation from other mycotic infections is to be made only by microscopical, cultural and histological examinations. A positive microscopical finding may be regarded as reliable. A positive culture alone does not exclude the saprophytic presence of fungi. The monilia culture should appear in 4 to 7 days as an opaque white growth, in some strains pink, on Sabouraud's medium. For histological examination the section should be made through a hair follicle. "In no case has the fungus been demonstrated with certainty within the hairs. The typical yeast-like character of the budding or sporulation is very striking in monilia affections and is shown to advantage in sections." This communication is well illustrated.

W. J. O.

Castellani (Aldo). **Note on the Occurrence of Various Tineae in New Orleans. With Remarks on** *Trichophyton Louisianicum.*—*New Orleans Med. & Surg. Jl.* 1927. June. Vol. 79. No. 12. pp. 896–899. With 3 text figs. [1 ref.]

The various tineae occurring in New Orleans are briefly mentioned. Epidermophytosis is extremely common; the microsporon, trichophyton and favus infections are comparatively rare; *T. imbricata* is absent. The *T. louisianicum* produces (1) a dry type of lesion on the glabrous skin consisting of white patches with pityriasic desquamation, often showing in association with it a large number of yeast-like organisms which might account for the depigmented appearance, and (2) moist crusted rather than scaly lesions. The biological and cultural characteristics of this fungus are described and contrasted with those of other members of the genus *Trichophyton*.

W. J. O.

Hashimoto (T.), Ishibashi (T.), Iwatake (H.) & Ota (M.). Le favus en Mongolie et son champignon causal: *Grubyella Schönleinii* var. *Mongolica* n. var. Hashimoto et Ota. **Favus in Mongolia and its Causal Fungus.**—*Japan. Jl. Dermat. & Urol.* 1927. May. Vol. 27. No. 5. French summary pp. 33–35. [In Japanese pp. 386–409. With 16 text figs.] [Dermato-Urol. Clinics, Faculty of Med., Mukden & Nagoya.]

Cultures were obtained from 30 of 59 cases of ring-worm met with in Mongolia; 22 were the same species, and are considered to be a new variety which is called *Grubyella schönleinii* var. *mongolica* n. var. Hashimoto & Ota. The favus it occasions may have typical cups; small cups tightly inserted into the follicle; or the cups may be

completely absent, when the clinical aspect closely resembles microsporosis. It was most prevalent in males between 3 and 45 years, and was especially frequent between the ages 10 and 15.

Cultures on Sabouraud's peptone agar for the first three generations appear as discs of a maroon colour with fringed margin and irregularly radiating furrows. Later generations have cultures closely resembling those of *G. schönleinii* Lebert 1845. On glucose and maltose agar the early generations are similar to those on peptone agar, but the aspect changes in later generations and comes to resemble cultures of *Trichophyton flavum* Bodin or *T. plicatile* Sabouraud. The morphology of the mycelium is practically the same as that of *G. schönleinii*.

It cannot be inoculated to man if he is already infected, or is infected with syphilis. Mice are very susceptible and inoculation results in deep ulceration; but guineapigs and rabbits, when inoculated by cutaneous scarification, suffer only a desquamation lasting a few days. Intravenous inoculation of rabbits with cultures caused death, and sub-cutaneous inoculation led to abscess formation at the point of inoculation.

The cuti-reaction was not specific, and fixation of the complement was positive with serum of rabbits sensitized by cultures, but negative to serum of favus patients.

P. Tate.

Ambrosoli (G. A.). Coltura di *Achorion Schönleinii* dal sangue circolenta in un caso di tigna favosa. **[*Achorion schönleinii* cultivated from the Peripheral Blood in a Case of Favus.]** —*Policlinico.* Sez. Prat. 1927. Apr. 4. Vol. 34. No. 14. pp. 487–488.

A boy of six years had a patch of favus on the head and he gave a positive intradermal reaction to the fungus without general symptoms. The author took some blood on to Pollacci's glucose-agar and in 6–7 days small white spots appeared which became confluent in 15–16 days and had the morphological characters of *Achorion schönleinii*.

H. Harold Scott.

Gammel (John A.). **The Etiology of Maduromycosis with a Mycologic Report of Two New Species observed in the United States.** —*Arch. Dermat. & Syph.* 1927. Mar. Vol. 15. No. 3. pp. 241–284. With 20 text figs. [68 refs.]

This paper first gives a long general and historical account of Maduromycosis and Actinomycotic mycetomas. In the United States 21 cases of mycetoma have been reported, of which 18 were actinomycoses (mycetomas due to *Microsiphonales*) and 3 maduromycoses (mycetomas due to *Eumycetes*). To these are added 3 hitherto unpublished cases, making 6 cases of maduromycoses in all, of which 4 were of the black-grained variety. Two of the latter cases are described in detail both clinically and mycologically. Fungi isolated from both cases belong to the genus *Madurella*, and differ from each other and from previously described species. They are considered to be new species and are named *Madurella americana* and *M. ikedai*. Neither is pathogenic for animals. These new species bring the total number of fungi observed in cases of maduromycoses up to 19, distributed among the genera *Madurella* (8), *Indiella* (3), *Glenospora* (2), *Scedosporium* (2), *Allescheria* (1), *Aspergillus* (1), *Sterigmatocystis* (1), and *Penicillium* (1).

P. Tate.

Montpellier (J.), Catanei (A.) & Clapier (P.). Etude d'un mycétome à grains noirs dû à *Glenospora clapieri* Catanei, 1927. [**A Mycetoma with Black Grains.**]—*Bull. Soc. Path. Exot.* 1927. June 8. Vol. 20. No. 6. pp. 502–511. With 4 text figs. [5 refs.]

The patient, a Singhalese who had been stationed one year in Algiers, had a tumour about the size of a nut lying along the right maxilla. The skin adhered to the tumour, was not changed in colour, and had several small apertures from which no fluid could be expressed. Puncture allowed the escape of rather thick yellowish pus containing numerous small black grains.

The grains are black, of varying form, and are usually smaller than the head of a pin. They are formed of closely interlaced hyphae averaging 2·5μ in diameter, and of more or less globular bodies which may attain a size of 8·5μ by 6·5μ, and which may be terminal or intercalary. The grains are not differentiated into zones.

Growth was readily obtained from the grains on Sabouraud's glucose agar at 37° C. Cultures are black, shining, and are covered with numerous pointed projections 1–2 mm. high. Later, the cultures become covered with a grey down. The characters on various other media are briefly described.

The mycelium is composed of septate hyphae, 2·5–3μ in diameter, and sometimes of a more or less dark brown colour. There is a tendency for numbers of hyphae to aggregate into fascicles. Terminal and intercalary aleuries are developed, which are generally ovoid and vary in size from 6·5–9μ by 5–6μ. Terminal and intercalary chlamydospores 10·5–15μ by 9–15μ are occasionally found. The fungus is identified as a *Glenospora*, but differs from any known species and is consequently named *Glenospora clapieri* Catanei, 1927.

Animal inoculation was negative.

P. Tate.

Pijper (Adrianus) & Pullinger (B. Davidine). **South African Nocardiases.**—*Jl. Trop. Med. & Hyg.* 1927. June 15. Vol. 30. No. 12. pp. 153–156. With 7 figs. on 2 plates. [13 refs.]

Mycetoma is not rare in South Africa but, in contrast to North Africa, it is always actinomycotic. Detailed accounts of three cases of mycetoma are given, in each of which the parasite is regarded as being a new species.

The first case was of an adult native and involved the upper part of the right breast and arm. The grains were yellowish and possessed typical clubs. Cultures, which were obtained on blood-agar, are strictly aerobic and have a mouldy odour. Hay-extract proved the best simple medium for growth. There is a tendency to form an orange pigment, which varies in intensity on different media. Intraperitoneal inoculation of guineapigs wth 1 cc. of a fine suspension of the mycelium gave rise to lesions in the peiritoneal cavity chiefly affecting the omentum. The organism is named *Nocardia pretoriana* Pijper & Pullinger 1927.

The second was a case of mycetoma pedis extending over the malleoli, and the grains were whitish and showed typical clubs. Cultures, obtained on blood-agar, are strictly aerobic and soon form a white chalky efflorescence on the medium. Its pathogenicity to animals is similar to that of the first species. It differs in certain characters from the previous species and from other known species, and is named *Nocardia transvalensis* Pijper & Pullinger 1927.

The third was a typical case of mycetoma pedis. The grains were peculiar in being bright carmine in colour and very hard. Clubs were not present. Cultivation was difficult and very slow, and no growth was obtained on any of the common media such as broth, potato, agar, hay-extract, etc. On blood-agar the cultures, which are strictly aerobic and have no odour, grow well and after a time produce a red colour. Litmus milk is a good medium for growth and is coagulated without change in reaction after 8 days. On this medium bright red colonies of the fungus are developed towards the surface. The pathogenicity to animals is the same as that of the two previous species. This species is named *Nocardia africana* Pijper & Pullinger 1927.

P. Tate.

da Fonseca, Filho (O.) & Leão (A. E. de Arêa). Sobre o "Scedosporium apiospermum," cogumelo productor de mycetomas na Italia e no Brazil. [**"Scedosporium apiospermum," a Cause of Mycetoma in Italy and Brazil.**]—*Bol. Inst. Brasileiro de Sci.* Rio de Janeiro. 1927. Feb. 25. Vol. 3. No. 2. pp. 24–25. Also in *Sciencia Med.* 1927. Sept. Vol. 5. No. 9. pp. 536–539. With 7 text figs. In English pp. 539–540.

This fungus has been found by Tarozzi and others in Italy and by Severiano in Brazil, and was named by Saccardo *Scedosporium apiospermum.*

It grows readily on potato and on Sabouraud's media, as white cotton-like colonies, slightly invading the medium and producing a greenish-black pigment. Three types of reproductive elements are seen: (1) Pyriform conidia, especially abundant on Czapeck's agar, and arising at the termination of a mycelial filament; (2) Fusiform spores curved so as to appear crescent-shaped when viewed on the side, surrounded by a thin membrane and constricted from the mycelial thread, only one to each; (3) Chlamydospores, after several days' growth, particularly numerous on Sabouraud maltose; they may be intercalary or terminal, in groups of two to five elements.

The grains of the form of mycetoma produced by this are present in small numbers only and are of a bright yellow colour, and about 3 mm. in diameter.

H. Harold Scott.

Gelonesi (Gregorio). Due nuovi parassiti del "Piede di Madura." Studio sui micetomi della Somalia Meridionale. [**Two New Parasites of Madura Foot. A Study of Mycetoma in Southern Somalia.**]—*Ann. di Med. Nav. e Colon.* 1927. May–June. Year 33. Vol. 1. No. 5–6. pp. 283–308. With 8 text figs. [15 refs.] ["A. Cecchi" Hosp., Villabruzzi (Somali) & School of Naval Hyg., Naples.]

Of the various forms of mycetoma in Somalia, that with white or yellow granules and that with black are common; that with red granules is not seen. Two cases are reported in detail in both of which the granules were black in colour, but not due to any of the usual parasitic fungi. In the first the destruction was limited to the connective tissue, the subcutaneous fat being replaced by a firm fibrous growth with small cavities or cysts containing greyish viscid purulent material. From this was cultivated one of the Phycomycetes, allied to the Mucoraceae. The hyphae were septate, branching, with

very distinct walls, reproducing by direct fission and lateral gemmation. They terminated by a sporangium without any columella, but with abundant black pigment. The author names it *Mucor mycetomi.*

The fungus in the second case grew as a mycelium with thin, septate elements, slightly branching, reproducing by fission and by chlamydospores. They terminated in asci each containing four to six spores with sprinkling of black pigment. It is thought to belong to the Aspergillus group and is therefore designated *Aspergillus mycetomi villabruzzii.*

Not having any of Sabouraud's media at hand the author employed banana and obtained good growth.

H. Harold Scott.

Pasquini Lopez (Carlos). Un caso de pie de madura. [**A Case of Madura Foot.**]—*Bol. Inst. Clin. Quirurg.* Buenos Aires. 1927. Vol. 3. Nos. 21–25. pp. 829–832. [Also issued as *3a Reunión, Soc. Argentina Patol. Regional del Norte, Tucumán, Julio, 7, 8 y 10, 1927.* pp. 721–724.]

General remarks on this condition, illustrated by the case of a man, 23 years of age, who sustained an injury to the right foot in 1919. This suppurated and was very slow in healing. Later a papule appeared in the scar and discharged a little blood-tinged fluid; there was a hard, indurated border. He came to hospital where the ulcer and surrounding parts were excised. The wound healed well, but six months later a nodule appeared in the scar and ulcerated. Others then arose in the neighbourhood and the whole foot became swollen and indurated, and on the dorsum and sides were numerous papules, ulcers and sinuses. The discharge contained granules the size of a pin's head. There was osteomyelitis of the os calcis and new foci were constantly forming, so amputation was decided upon. Cure was rapid.

H. Harold Scott.

Santillan (Prudencio) & Palacios (Gerardo). Discomicosis de la pierna. [**Discomycosis of the Leg.**]—*Bol. Inst. Clin. Quirurg.* Buenos Aires. 1927. Vol. 3. No. 21–25. pp. 825–828. With 5 text figs. [Also issued as *3a Reunión, Soc. Argentina Patol. Regional del Norte, Tucumán, Julio, 7, 8 y 10, 1927.* pp. 717–720 & illustrations.]

Illustrations of the conditions present in this patient show a very extensive involvement of the leg with large numbers of ulcers and sinuses. Cultivation of the fungus was obtained on Sabouraud-maltose. Treatment was tried with antisyphilitic remedies and vaccines of pyogenic cocci, iodide, etc., but without effect, and amputation had to be performed.

H. Harold Scott.

Cleland (J. Burton). **A Case of Systemic Blastomycosis with the Formation of a Myxomatous-Looking Tumour-Like Mass.**—*Med. Jl. Australia.* 1927. Mar. 5. 14th Year. Vol. 1. No. 10. pp. 337–340. With 1 text fig. [7 refs.]

This is the first case of blastomycosis observed in Australia, although not the first to be published. The patient, a male aged 47, towards the end of 1915 developed a swelling about 4 inches in diameter situated on the mid-point of the right iliac crest, which was tender on palpation and presented the clinical appearance of a sarcoma. The tumour was excised, and microscopical examination of the material revealed the presence of numerous budding yeast-cells, 8–15 microns in diameter.

Local treatment, consisting of curettage and irrigation with quinine ; and general treatment with salvarsan, potassium iodide and emetine were unavailing and death occurred in April, 1916.

Cultures of the organism were not obtained and animal inoculation was negative.

P. Tate.

Dahlmann (Fritz). Ein Fall von Pseudo-Creeping Disease. [**A Case of Pseudo-Creeping Disease.**]—*Dermat. Woch.* 1927. Feb. 26. Vol. 84. No. 9. pp. 292–296. With 2 text figs. [9 refs.]

Case report of a woman, aged 28, who had observed the white streaks about the inguinal region of the right thigh for 3 years in association with distressing exudation of serum from a pin-head sized fistula on the inner aspect of the thigh of 2 years' duration prior to the appearance of the linear lesions. She could remember no trauma from bites of flies, nor was she in contact with cattle or horses. The lesions appeared as a series of white parallel lines, ½ mm. broad and 3·0–3·5 mm. long, slightly raised above the skin surface. All tended to point towards a lentil sized red area of skin where the small fistula was situated. The histological picture showed a cavity lying in the cutis immediately below the papillary layer, with the epidermis stretched and slightly thickened over it. There was no apparent alteration of the elastic or connective tissues, no evidence of endothelial preformation. Surrounding the cavity was a considerable cellular infiltration consisting of round cells, polymorphonuclear leucocytes and fixed connective tissue cells (histiocytes) : no trace of any parasite. While the condition was not regarded as a case of true creeping disease, the unusual clinical picture was considered to be due to a parasitic infection rather than to some anomaly of the lymph system.

W. J. O.

Shinn (H. L.). **Creeping Eruption. Report of Case.**—*U.S. Nav. Med. Bull.* 1927. July. Vol. 25. No. 3. pp. 632–633.

Account of a case in which both feet were infected probably from contaminated sand of the beach. The organism was observed to travel about 1 inch per day, in no definite direction but with a circular tendency giving the appearance of ringworm. Lunar caustic applied over the course traced by the parasite and more heavily over its site, followed by 5 per cent. mercurochrome ointment, resulted in healing. No attempt was made to isolate the organism.

W. J. O.

Garzon (Rafael). Dermatosis eruptiva serpenteante linear. Su tratamiento. [**Creeping Eruption and its Treatment.**]—*Prensa Méd. Argentina.* 1927. Mar. 30. Vol. 13. No. 30. pp. 1008–1017. With 4 text figs.

The case is that of a child of 3½ years, who had never been away from Cordoba. For six months there had been a sinuous creeping eruption, with much itching, extending from the left lumbar region to the shoulder, abdomen and chest, with many turns. It disappeared for 15 to 20 days at a time.

The usual advance was 3–5 cm. in 24 hours, but scratching seemed to stimulate the parasite and it moved as much as 8–10 cm.

Many forms of treatment were tried without effect, till, finally, a single application of ethyl chloride spray at the advancing spot brought about a cure. Other cases may require repetition of the treatment.

H. Harold Scott.

White (E. F.) & Dove (W. E.). **Dogs and Cats concerned in the Causation of Creeping Eruption.**—*U.S. Dept. Agr. Off. Rec.* 1926. Vol. 5. No. 43. p. 6. [Summarized in *Experiment Station Rec.* 1927. June. Vol. 56. No. 8. p. 776.

From one of the places in the South Atlantic and Gulf States, U.S.A., where there is a high incidence of creeping eruption, the authors obtained from the faeces of dogs and cats a culture of larvae of *Ancylostoma brasiliense* and *A. caninum*. When applied to their own skin this culture produced symptoms and lesions clinically characteristic of creeping eruption.

R. T. Leiper.

Hodara (Menahem) & Behdjet (Houloussi). Juckende, durch Getreide hervorgerufene Dermatosen im Orient. [**Itching Dermatoses in the East produced by Barley.**]—*Dermat. Woch.* 1927. Feb. 26. Vol. 84. No. 9. pp. 296–298.

Among the itch mites giving rise to itching dermatoses from contact with barley and straw, the authors have frequently been able to determine the presence of Glycophagus. Brief allusion is made to cases of pruritus occurring among the attendants of horses showing lesions about the lips and nasal orifices due to infection from their litter. An acute case in a tramp is described, with generalized swelling of the integument including the eyelids together with fever and albuminuria. The condition was diagnosed mainly by the history of the patient's having slept on straw. Another case is mentioned with the disease in acute form localized to those parts that had been in contact with a sack of straw in which the Glycophagus was found. Mild cases clear up entirely in the course of a few days without any treatment ; for the more severe types saline baths are recommended. The parasite was never found in the skin lesions. The disease is not contagious and soon clears on removal from the source of irritation.

W. J. O.

Peter (F. M.). Bemerkungen zur Therapie der Tropenulcera. [**Remarks on the Treatment of Tropical Ulcer.**]—*Arch. f. Schiffs- u. Trop.-Hyg.* 1927. Oct. Vol. 31. No. 10. pp. 447–459. [Works Hosp., Surinam Bauxite Co., Moengo, Dutch W. Indies.]

A general account of the disease emphasizes the purely local nature of the affection. Characteristic features of the ulcer are its penetrating odour, the adherent membranous covering, the rapidity of its extension, its obstinacy towards therapeutic measures and its tendency towards recurrence. Salvarsan treatment against the lesion itself is of no value, but is useful for diagnostic purposes in cases of supposed mixed infection. As a local application pyrogallic acid is recommended both for its antiparasitic properties and as a stimulant to new epithelial formation. This is used as a dusting powder—ac. pyrogallic 10, zinci oxidi 40, talc. veneti ad 100 parts—applied twice daily under a change of dressings. During its use the urine must be regularly and carefully examined, and the toxic effects of any absorption obviated by 10–15 minims of dilute hydrochloric acid given in water twice daily after meals. Some 3–4 days after new granulations have appeared the dusting powder is stopped. The area of skin surrounding the

ulcer must be protected, e.g., by boric vaseline, from the effect of the pyrogallol. Patients in hospital may be treated for the first 2–3 days with a compress of 1 : 4,000 silver nitrate solution during the day with the powder applied at night. The corners of the ulcer often prove more refractory towards the treatment than the remainder of the lesion and require a higher percentage (15–20) of pyrogallol. Long standing lesions may be treated at first with pyrogallol plaster cut to the size of the ulcer, after which they are dressed with the dusting powder. Two cases are reported and their progress noted under the treatment advocated.

W. J. O.

VAN BOMMEL (L. B.). De behandeling van het ulcus phagedaenicum tropicum met "Pyotropin." [**Treatment of Ulcus tropicum with Pyotropin.**]—*Geneesk. Tijdschr. v. Nederl.-Indië.* 1927. Vol. 67. No. 2. pp. 323–325.

The author experienced some difficulties in administering the usual methods of treatment to native dispensary patients. This induced him to give a trial to "Pyotropin," a proprietary medicine (Lupusan Gesellschaft m.b.H., Altona), which is said to act by a combination of keratolytics and caustics. The author recommends the use of this cure, which in 50 cases is said to have acted favourably. As the cure, however, causes pain just as much as any other, it is difficult to see the special advantages claimed for it.

W. J. Bais.

ARJONA (Vicente Rodriguez). Beitrag zur Kenntnis des "Pinta" (Mal del Pinto) auf der Halbinsel Yucatán. [**Pinta in the Peninsula of Yucatan.**]—*Arch. f. Schiffs- u. Trop.-Hyg.* 1927. Oct. Vol. 31. No. 10. pp. 472–477. With 6 text figs.

This somewhat inconclusive communication contains a short account of a depigmentary dermatosis occurring in Yucatan, chiefly among young persons of 10 to 25 years of age who are the offspring of "mixed" marriages. The condition may affect any area of the body; the lesions, of irregular shape and extent, may be single or multiple and consist of smooth, non-scaling macules without any subjective irritation or paraesthesia. In this respect they differ from the lesions of "pinta" or "caraté," endemic in other Mexican States. It is noted that the depigmented areas of skin are particularly sensitive to external irritants and markedly so to the solar rays. Scrapings from the lesions examined in potash and cultural experiments were all negative to the finding of any specific fungus, though the clinical features of the disease and its apparent transferability to others suggest a parasitic, probably fungoid, origin. It is suggested that the infecting agent may be present as a contamination of the ingested maize. Treatment by neosalvarsan in the early stages of the disease gives good results. For the long standing lesions, in which the skin has lost the property of pigment regeneration, the only remedy is the introduction into the skin of some dye.

W. J. O.

Menk (Walter). **Caraate in Colombia.**—*Fifteenth Ann. Rep. Med. Dept. United Fruit Company, Boston, Mass.* 1926. pp. 123–131. With 9 text figs. [2 refs.]

In this inconclusive, well-illustrated communication brief mention is made of 9 cases of caraate. The etiology of the disease is considered to be still debatable. While absent in the white type of the disease, numerous varieties of fungi may be found frequently in both the diseased and apparently unaffected skin areas in cases of the pigmented variety. Since the Wassermann reaction was positive in 74·5 per cent. of the writer's cases, diagnosed solely on clinical grounds, it is suggested that the development of the condition may be related to an old treponematosis, which suggestion is supported by the frequently beneficial effect of anti-syphilitic treatment.

W. J. O.

Escomel (Edmundo). La dermatitis climática que se denomina chapetonada en Arequipa. [**"Chapetonada," a Climatic Dermatitis of Arequipa.**]—*Crónica Méd.* Lima. 1927. June. Vol. 44. No. 768. pp. 176–180.

"Chapetonada" has been regarded as an acclimatizing state affecting newcomers to Arequipa. The author, however, finds that it attacks those living at an altitude of 2,000–3,000 metres above sea-level when they descend to the plains. Within a few hours up to 4 days after arrival the patient feels a burning pain over practically the whole body coinciding with the outbreak of erythematous spots which grow in size and become a papular urticarial rash with raised centre. It affects the trunk, limbs, face and hands—the exposed parts more than those covered by clothing. The discomfort is worse at night and leads to much scratching. Later the papules becomes vesicular and even pemphigoid. In a few days (the duration is variable) the vesicles dry up, leaving no scarring. The condition clears much more rapidly if the patient returns to the higher levels. It is neither contagious nor does it ever become epidemic.

As regards treatment the most effective is return to the hills; if this is impracticable, an initial saline purge is prescribed and a lotion containing menthol and camphor in alcohol. When the purgative has acted, two or three drops of adrenalin taken three times in the day is beneficial; autohaemotherapy and autoserotherapy often prove very effectual.

H. Harold Scott.

Vidal Guemes (Adolfo) & Arias (Francisco J.). Una dermatosis regional. [**A Regional Dermatosis.**]—*Bol. Inst. Clin. Quirúrg.* Buenos Aires. 1926. Vol. 2. No. 14, 15 & 16. pp. 541–545. With 1 text fig.

A woman of 22 years presented herself with a rash of red papules, many of them vesicular, varying in size up to 3 cm. in diameter, and accompanied by intense itching and mild general pains. The rash came out suddenly three days previously and involved the face, ears, neck, forearms, hands, legs and feet.

It is a condition quite well known to the local inhabitants, who state that it occurs every summer in those who come down from the higher

levels to the coast, and they ascribe it to the bites of mosquitoes or other insects, and aver that it clears up without any treatment in a few days after return to the higher levels.

The question of diagnosis from other pruriginous papulo-vesicular eruptions is discussed, and by elimination this is believed to be the condition designated " chapetonada " by Escomel (see this *Bulletin*, Vol. 23, p. 853 and above).

H. Harold Scott.

Huchard (G. L.). Pyodermite rebelle rapidement guérie par des pansements spécifiques d'après la méthode de Besredka. [**Obstinate Septic Dermatitis cured by Specific Dressings (Besredka's Method).**]—*Bull. Soc. Path. Exot.* 1927. June 8. Vol. 20. No. 6. pp. 546–547.

Case report concerning a woman, aged 27 years, in whom a polymorphic eruption of a bullous impetigo-ecthymatous type had recurred at intervals for 10 years, the attacks being of some weeks' to 3 months' duration and leaving always some pruriginous lesions. Local dressings of a filtrate of the broth-grown cultures of pus from an unbroken lesion repeated twice daily, together with injections of an autogenous vaccine, produced complete healing in 4 days.

W. J. O.

Anderson (T. Farnworth). **A Further Case of Erythema simulating Scarlatina.**—*Kenya & East African Med. Jl.* 1927. July. Vol. 4. No. 4. pp. 113–114.

Report of a case of generalized scarlatiniform erythema occurring in a woman, appearing on the third day of illness with fever and sore throat, lasting for one week and associated with a trace of albuminuria. The rash, tongue and sore throat appeared to be typical of scarlet fever, while the albuminuria developed at the onset of the rash to disappear with it. There was no later recurrence, nor development of nephritis. In none of the cases reported had any contact contracted the disease.

W. J. O.

den Hartog (B. J. C.). De Amazone-voet (Strong, Shattuck en Wheeler). [**Amazon Foot.**]—*Geneesk. Tijdschr. v. Nederl.-Indië.* 1927. Vol. 67. No. 4. pp. 520–527. With 6 figs. on 2 plates. [3 refs.] [Military Med. Lab., Weltevreden, Java.]

A case of " dermal granulomatous spirochaetosis " [Strong, Shattuck and Wheeler, Med. Rep. of the Hamilton-Rice Seventh Expedition to the Amazon [this *Bulletin*, Vol. 24, p. 325; 78 Strong] is described and represented in good illustrations. It occurred in a Malay who had never left Sumatra.

Strong found spirochaetes in the affected tissue (*Sp. noguchii*), and considered these to be the cause of the disease. Den Hartog, though able to find the same spirochaetes, cannot indiscriminately recognize them as the causal factor, but leaves the possibility open that they are secondary invaders of the diseased skin, especially because of their exclusive localization in the superficial layers.

Other possible etiologies are discussed ; the tissue was searched for Koch's bacillus, fungi and Leishmania, with negative result. Syphilis and yaws may be excluded as they have never been reported to give rise to such affections.

In view of the uncertainty of the etiology, the author thinks that the name given to the disease by STRONG is premature and for the time being he proposes the more non-committal name of " Amazon-foot."

W. J. Bais.

SÉNO (R.). Een eigenaardige huidaandoening ter diagnose. [**A Peculiar Skin Affection for Diagnosis.**]—*Geneesk. Tijdschr. v. Nederl.-Indië.* 1927. Vol. 67. No. 3. pp. 406–415. With 2 figs. on 1 plate. [Chinese Hosp. of the G.M.B., Tandjong-Pandan.]

A Chinese who had suffered about 2 years from a peculiar affection of the skin. With irregular intervals local necrosis occurred in various places of the skin of abdomen and legs, resulting in an ulcer, serpiginously spreading over a fairly large area. The ulcer then healed in 2–3 weeks. No constitutional or other cause of the affection could be detected. Anatomo-pathological examination showed that there existed a strictly localized arteritis of the terminal arteries of the skin, but the etiology thereof remained obscure.

W. J. Bais.

GAGE (Alfred). **Streptococcal Subcutaneous Necrosis with Gangrene of the Skin.**—*Fifteenth Ann. Rep. Med. Dept. United Fruit Company, Boston, Mass.* 1926. pp. 194–198. [3 refs.]

Four cases are reported of which one proved fatal. Infection by the short-chain haemolytic streptococcus follows trauma, such as crushing injuries or contusions rather than incised wounds and spreads rapidly. The condition is considered to be a definite clinical entity. Treatment consists in early multiple radical incisions, elevation of the flaps and packing with 2 per cent. mercurochrome or 4 per cent. boric acid solutions, preferably hot.

W. J. O.

GROMIER (E.). Cas de tumeurs fibreuses chéloïdiennes généralisées. [**Case of Generalized Keloid.**]—*Bull. Soc. Path. Exot.* 1927. June 8. Vol. 20. No. 6. pp. 553–556. With 2 text figs.

Clinical case report concerning a woman of Lower Guinea, aged 40 years, with raised, hard, well-defined keloidal tumours generalized over the trunk and limbs. Pendulous softer tumours were present on the lobes of the ears. The skin lesions had commenced as pruriginous nodules at the age of 13 years, to proliferate after the establishment of catamenia some 2 years later, accompanied by intense pruritus, nocturnal headaches and severe pains in the bones. There was no apparent cause for the gradual progression of the disease. Her two girls, aged 15 and 18 years respectively, showed similar itching, small nodules following the commencement of menstruation associated in the case of the elder girl with bone pains and nocturnal headaches.

W. J. O.

Legendre (J.). A propos de la dermatite blastomycosique chéloïdienne. [**Concerning Cheloid Blastomycotic Dermatitis.**]—*Bull. Soc. Path. Exot.* 1927. Apr. 13. Vol. 20. No. 4. p. 323.

The author considers that the cheloid blastomycosis described by R. Montel & R. Pons (this *Bulletin*, Vol. 24, p. 447) is the same as was observed by him at Tonkin [Deux cas de blastomycose (cutanée) humaine observés au Tonkin. *Bull. méd.-chir. de l'Indo-Chine.* 1911. Sept.], caused by a blastomycete named by him *Blastomyces Tonkini*. In both of his cases large doses of potassium iodide were rapidly curative.

P. Tate.

Ishikawa (S.) & Nohira (A.). [**Osmidrosis Axillaris.**]—*Acta Dermat.* Kyoto, Japan. 1926. Dec. Vol. 8. p. 775. [Summarized in *Jl. Amer. Med. Assoc.* 1927. Apr. 30. Vol. 88. No. 18. p. 1451.]

The strong smelling sweat, in 19 cases of this affection commencing at puberty, is ascribed to the abnormal development of the apocrine glands which were found present in increased numbers and size.

W. J. O.

UNDULANT AND ABORTUS FEVERS.

BASSETT-SMITH (Percy). **The Relationship of Undulant Fever of Man to Epidemic Abortion of Animals.**—*Jl. State Med.* 1927. Sept. Vol. 35. No. 9. pp. 508–512. [7 refs.]; also in *Jl. Roy. Nav. Med. Serv.* 1927. Oct. Vol. 13. No. 4. pp. 258–263. With 3 maps in text. [7 refs.]

This paper commences with a brief but useful review of the history of undulant fever, special stress being laid on the rôle of the goat as a carrier of infection in many parts of the world and on the fact that, in undulant fever, such complications as orchitis, ovarian symptoms and mastitis are encountered and, of rare occurrence, abortion. HUGHES is quoted as stating that, in his experience, undulant fever does not cause abortion.

Mention is made of the part played by sheep as " carriers," notably in Southern France, and there is a reference to infection from bovine sources both in France and Italy. Here, however, the original infection was probably of caprine origin and due to the true *Brucella melitensis*. The author then considers *Br. abortus*, pointing out that it has a very low power of infection to man, massive doses being required, and referring to American work which has shown that this organism may apparently be the cause of a prolonged fever of undulant type from pigs. He contrasts its culture reactions with those of *Br. melitensis* and indicates that clinical, epidemiological and pathological characters rather than morphological, biochemical and serological results distinguish the diseases produced in man by *Br. melitensis* and *Br. abortus* respectively. These two organisms are closely related, though it has been stated that immunization of a monkey with abortus will protect that animal against melitensis. At the same time, there appears to be little in favour of the theory that *Br. abortus* and *Br. melitensis* are the same organism with its virulence altered by passage through different animals.

In the United States, where much of the recent work on the Brucella group has been done, there is probably a true abortus infection of cattle and pigs by the *Br. abortus* of Bang and a secondary infection of cattle from goats originally coming from the Mediterranean area, giving rise to endemic centres in Texas and Western America.

A. Balfour.

SDRODOWSKI (P.). Beobachtungen ueber das Malta-fieber in Aserbeidshan. [**Undulant Fever in Azerbaijan.**]—*Arch. f. Schiffs- u. Trop.-Hyg.* 1927. July. Vol. 31. No. 7. pp. 301–311. [1 ref.] [State Bact. Inst., Baku, Azerbaijan.]

This very interesting paper is divided into three parts and is full of information.

Epidemiology.—In the autumn of 1922 the author first definitely identified undulant fever in Azerbaijan; it is now known to be widely distributed in the Transcaucasus and probably much further. He states definitely that not only goats but sheep carry the infection to man through milk products, especially cheese, which is almost always made from goat's milk. In Baku the outbreaks appear to depend on the marketing of cheese brought from a distance. Other sources of

infection are cattle, for of 82 examined at the slaughter house at Baku, 4·8 per cent.* gave a positive reaction up to 1 in 300, but the amount of infectious abortion is not known.

Clinical observations.—The symptoms are very varied in character and severity. It is noted that ten of the laboratory staff have become infected in the past 4 years. Affections of the joints and tendons were common, as also severe peripheral neuritis without atrophy of the muscles, periostitis, orchitis and mastitis; one case of jaundice was noted. There were no deaths among the ten, but of the 21 cases of Dr. ISSAKJAN one Armenian died. The duration of the disease was long, up to 3 years. The diagnosis was made by blood culture in 85 per cent., but agglutination results were very definite with a titre up to 1 in 10,000. In chronic cases complement fixation gave the best results.

Experimental investigation.—Guineapigs were found to be very sensitive to the infection. The author divides his work into two series. In 1922–23, when fresh human strains were used, the virulence was very marked and the animals all died in from 2 to 5 months. The striking symptoms were fever, progressive weakness and loss of weight, trophic lesions, paresis and paralysis of the hind quarters. Occasionally with oral infection there was acute septicaemia and death. In the second series in 1924–6, with the use of the same strains, the results were very different. The infection ran a chronic course and the lesions were localized in the spleen, lymphatics, and marrow, without septicaemia. The close similarity of these findings with those of tuberculosis was very marked, as has been pointed out by BURNET. The author describes the organism as a new variety, *M. melitensis Caucasica.*

From August, 1926, there was an epizootic of the infection in the animal house spread accidentally in his 400 guineapigs; this gave his assistant, Dr. BRENN, ample opportunity for many interesting studies; 200 of the chronically affected guineapigs were fully investigated.

With Melitine after BURNET, 94 per cent. were positive.
Wright's agglutination test, 83 per cent. were positive.
Bacteriological (post-mortem), 66·5 per cent. were positive.

Of 48 pregnant animals the foetus was infected in 33 through the placenta. Lymphadenitis, enlarged spleen, and lesions in the liver, articulations, testicles and eyes were common and proportions affected of each are given, but Dr. BRENN is later to give a full report [see also this *Bulletin*, Vol. 24, p. 108]. [The widespread infection among the animals with high degree of foetal infection suggests infectious abortion.]

P. W. Bassett-Smith.

ESPOSITO (Alessandro). Il problema clinico della infezione melitense. [**The Clinical Aspect of Undulant Fever.**]—*Giorn. di Clin. Med.* 1927. Sept. 20. Vol. 8. No. 13. pp. 527–548. [General Med. Clinic, R. Univ., Pavia.]

The author details six cases of undulant fever said to be the first recorded in the Province of Pavia. There is nothing particular to note in the symptomatology. The diagnosis was made by agglutination in each case, not by blood-culture. The serum in four cases

* Not 48 per cent. as given in Vol. 24, p. 108, of this *Bulletin*.

agglutinated *B. melitensis* and *B. abortus* in equal titre, in the others in a higher dilution with the former.

The remainder of the article is occupied by a review of the various methods which have been proposed to differentiate these two organisms.

H. Harold Scott.

RUDDOCK (John C.). **Undulant Fever.**—*California & Western Med.* 1927. July. Vol. 27. No. 1. pp. 61–64. With 1 chart in text. [19 refs.]

The author describes a case of undulant fever from Los Angelos, in a young mother with a 3-months-old infant which she was suckling. The patient apparently made a good recovery following the use of quinine, but the duration of the illness is not stated. The blood culture was negative, but the serum agglutinated the abortus variety of Brucella to a dilution of 1 in 1,280. The interesting point was that the baby remained in good health, though it was nursed by the mother for the first five months, the mother taking three pints of raw cow's milk daily [*cf.* BURNET & CONSEIL, this *Bulletin*, Vol. 22, p. 513]. He draws the following conclusions :—

(1) All strains of *B. abortus* are not pathogenic to man, but *only those strains that have a Melitensis variation* (italics the reviewer's).

(2) It is of utmost economic importance that the origin of the pathogenic strain be isolated, since it is known that certain milk cows are infected and give abortus (melitensis) infected milk.

(3) Any case of prolonged fever, with sweats, large spleen and leucopenia should be suspected as an abortus(?) infection.

[The author quotes AUCHIE incorrectly as describing the alarming spread of abortus infection in France ; this should read " spread of undulant fever." The author's views appear to be in favour of there being two causes of infection in these fevers : first, a melitensis form secondarily infected into the cow, of true European type, very infective ; second, a true abortus, rarely infective and usually inoculated.]

P. W. B-S.

BELYEA (G. N.). *Brucella abortus* **Infection in a Woman.**— *Jl. Amer. Med. Assoc.* 1927. May 7. Vol. 88. No. 19. p. 1482. [3 refs.]

The author reports a case of prolonged fever in a woman treated in the hospital at Bellingham, from one of the large dairy areas on the Pacific Coast where epidemic abortion is very common in cattle. The case was variously diagnosed as typhoid, malaria, and streptococcic septicaemia, but the blood showed a leucopenia, agglutinated *B. abortus* up to 1 in 320 and a small gram-negative coccoid organism was isolated by culture. The symptoms were fever, headache, tachycardia and vaginal haemorrhage. Intravenous injections of mercurochrome caused chills, diarrhoea, vomiting and a rapid rise of temperature to 106° with fall to normal on the third day. A relapse followed. The treatment was repeated with similar results and the patient was finally discharged cured. The method of infection is not stated.

P. W. B-S.

KREUTER (E.). Ueber menschliche Infektion mit Bacillus Bang. [**Human Infection with Bang's Bacillus.**]—*Klin. Woch.* 1927. July 16. Vol. 6. No. 29. pp. 1380–1381. [9 refs.] [City Hosp., Nürnberg.]

A veterinary surgeon at Baden, three weeks after operating on a cow which had aborted, was taken ill with what was thought to be influenza. The fever, however, continued with night sweats and pains for three months, followed by two months remission and return of the fever with orchitis and finally good convalescence. The blood cultures were always negative, but the agglutination titre with both *Br. abortus* and *melitensis* was high. The case was treated with a mixed vaccine of the two organisms (strength not stated). After the second injection, which was given during the last fever wave, the temperature fell. After the fifth all the symptoms had disappeared.

[A case of direct and probably heavy infection with *Br. abortus*, giving rise to a prolonged fever of the undulant type.]

P. W. B-S.

DIETEL (Friedrich). Bacillus abortus-Bang-Infektionen beim Menschen. [**Human Infection with** *B. abortus.*]—*Muench. Med. Woch.* 1927. Oct. 7. Vol. 74. No. 40. pp. 1704–1705. [2 refs.] [Univ. Skin Clinic, Erlangen.]

A case of a prolonged fever in a veterinary surgeon has been described by KREUTER and the author states that though the literature is very scanty it is fairly certain that such cases are more common than is generally believed. He describes one case of his own, also in a veterinary officer who in 1925, fourteen days after attending a cow with infectious abortion, suffered from haemorhagic dermatitis of both arms ; from one of the blebs a gram-negative micrococcus was isolated but not identified. This was cured in 14 days. Two years later after eating some tainted food he suffered from a prolonged febrile attack with symptoms of colitis and the smell was like that of infectious abortion. After two months a blood sample was sent to be tested and a positive result of 1 in 2,000 to Bang's bacillus was given. It is doubtful whether the 1925 attack was the determining cause ; if so, the latent period was very long and possibly the infected food acted as a predisposing cause ; evidently the 1925 infection did not cause any immunity reaction.

P. W. B-S.

VEILCHENBLAU. Die Infektion mit dem Bact. abort. Boum (Bang). [**Human Infection with** *B. abortus.*]—*Muench. Med. Woch.* 1927. Oct. 7. Vol. 74. No. 40. pp. 1705–1707. [10 refs.]

This paper in association with that of DIETEL is of great interest. The author first notes *how seldom* human cases of abortus disease occur even where epidemic abortion of cattle is very common, viz., lower Austria, Bavaria, etc., but from *time to time* in Bavaria those attending cattle have become infected from the after-birth through injury of the skin. He gives fairly full notes of one case and mentions three others, all in veterinary men.

First case.—Removed two after-births from infected cows and a fortnight after (Aug. 21st) began to feel ill with irregular temperature. On September 9th a blood culture was negative. The case resembled paratyphoid. October 5th, blood showed a marked lymphocytosis, and culture

was again negative. He was treated with trypoflavin intravenously. The temperature fell to normal, but in November a relapse followed which cleared up under intramuscular injections of iodine and camphor. On December 20th, a sample of blood was sent to the veterinary laboratory in Schleissheim and was found to agglutinate Bang's bacillus to 1 in 6,000. The patient made a slow recovery.

Second case.—Infection from a septic abortion cow, incubation 14 days, followed by 3 months' fever, and in the 4th relapse orchitis. He was treated with a mixed vaccine of abortus and melitensis with good result. The third and fourth cases to be reported later.

Discussing the differential diagnosis of the two diseases he thinks that they are independent. The course of the fever in abortus is less varied than undulant, but in both there is lymphocytosis and leucopenia. It is rare for man to become infected, but these veterinary cases prove that it is possible. With regard to the presence of specific agglutinins in children and adults who have used raw milk from abortus infected herds he states that further research is being carried out.

[The reviewer in London has examined a further series of 500 Wassermann bloods in the laboratory without finding any positive reactions to *Br. abortus* 80.]

P. W. B-S.

Ross (G. R.) & Martin (A. Paton). **The Treatment of Undulant Fever by Mercurochrome-220.** [With Note by Dr. Andrew Balfour.]—*Jl. Trop. Med. & Hyg.* 1927. July 1. Vol. 30. No. 13. pp. 165–171. [4 refs.]

The authors quote nine cases treated in the Salisbury hospital, with 1 per cent. of both the English and American preparations of mercurochrome. Amounts up to 25 cc. were given in doses varying from 2 to 15 cc. Three of the nine showed some improvement, but it is said that " no very visible proof has been produced that mercurochrome is likely to be of great value in the treatment of the disease, and it is not advisable to exceed a dose of 10 cc. of a 1 per cent. solution in adults."

Dr. Balfour refers to the case of Dr. Belyea (above) who claims to have cured a case by giving 30 cc., though excessive reaction with temperature of 106° occurred.

P. W. B-S.

Todd (M. L.). **Two Cases of Malta Fever treated with Mercurochrome.**—*Milit. Surgeon.* 1927. July. Vol. 61. No. 1. pp. 34–35.

Two cases were treated, each with a single dose [amount not stated] The first, a doctor, had high fever with cough. The micrococcus was isolated from his blood. After the injection the cough at once ceased ; recovery was rapid and complete. The second also had long fever with cough, loss of weight, and probable blood infection. As the patient was getting worse, 22 cc. of a 1 per cent. of mercurochrome was given, and produced a sharp reaction, but the patient was up the next day. No further information is given except that the author states, " it cured these two men."

[Mercurochrome is a dangerous drug when given in large doses ; great care and good records of the cases in which it is used should be taken.]

P. W. B-S.

Ross (G. R.). **The Agglutination Test in Undulant Fever due to *Brucella abortus*. A Preliminary Note on the Value of the "Abortoscope."**—*Trans. Roy. Soc. Trop. Med. & Hyg.* 1927. July 11. Vol. 21. No. 1. pp. 57–62. [8 refs.]

The investigation was made to determine the best agglutination method for the Brucella group. The author gives his views founded upon experimental evidence, thus, "In every circumstance the macroscopical method must be preferred" and in this the reviewer cordially agrees. Ross finds that in Southern Rhodesia, at least, simple agglutination cannot differentiate *Br. melitensis* from *Br. abortus*, thus confirming the opinion generally held. It is doubtful if he is correct in stating that the forms of undulant fever there are all due to *Br. abortus*, or that the presence of agglutinins in the serum is the most valuable diagnostic sign (a blood culture being the most important).

He states that of 12 sera of undulant fever cases tested, 8 agglutinated both organisms equally, while in 4 only abortus was agglutinated. *Br. abortus* was isolated by blood culture from 3 of the former and 1 of the latter. The value of these deductions depends on the method used in differentiating abortus from melitensis.

The "Abortoscope" invented by Bevan is a simple opacity method with a single dilution, one loopful of blood to a tube of emulsion. This is, no doubt, a very useful rough field-work test.

P. W. B-S.

Robinson (F. E.). **A Note on the Serological Identity of Rhodesian and American Strains of *Br. abortus* from Human Sources.**—*Jl. Med. Assoc. S. Africa.* 1927. Sept. 10. Vol. 1. No. 17. pp. 442–444. [6 refs.] [Pub. Health Lab., & Pasteur Inst., Salisbury, S. Rhodesia.]

Orpen and Ross have in South Africa identified six strains of *Br. abortus* and two of the so-called para-abortus from eight cases of fever. The author therefore made a study of the Rhodesian and American types of *Br. abortus* of both human and bovine origin by agglutination tests. He showed by this method that the American strains of *Br. abortus* are indistinquishable from the Rhodesian types of *Br. abortus* obtained from man; that is to say, a certain type of undulant fever is caused by an organism of similar character in both countries. By absorption test the organism is distinguished from *Br. melitensis* and the para forms.

P. W. B-S.

Valenti (Egidio). Ricerca fisico chimica di costituenti specifici nella compagine bacillare. I. Differenziazione del micrococco di Bruce dal bacillo di Bang. [**Physico-Chemical Researches on the Specific Constituents of the Structure of Bacilli. I. Differentiation of the Micrococcus of Bruce from Bang's Bacillus.**]—*Biochem. e Terap. Sperim.* 1927. Mar. 31. Vol. 14. No. 3. pp. 77–115. [32 refs.]

In this paper, to which are appended copious tables setting out the results of numerous serological tests on 55 strains of *B. abortus* and 44 of *B. melitensis*, the author reports finding that after heating to 100° C.

for an hour, no flocculation occurred with the former, but fully one-third with the latter. A second series of tests showed that if the bacilli were heated for 1½ hours and deprived of lipoid, it is possible to distinguish the two organisms, provided that the precaution is taken of working in parallel with known strains and with those so treated. This is designated "Thermodelipoidization." He concludes that their differing chemical structure warrants the organisms being regarded as distinct, and that, if the latter test is confirmed, it may be extended to distinguish between bacilli which present closely similar morphological and cultural characters.

H. Harold Scott.

Ross (G. R.). **The Value of Non-Specific Agglutination in the Differentiation of the Genus** *Brucella.*—*Jl. of Hyg.* 1927. Aug. Vol. 26. No. 3. pp. 279–284. [4 refs.]

The previous work of Vercellana & Zanzucchi, Trentini, Favilli on the use of non-specific substances in the differentiation of the melitensis group are described; the results are contradictory. The author has made a series of tests using many strains of *Br. melitensis*, *paramelitensis*, *abortus* and *para-abortus* from both old cultures and some recently isolated in Southern Rhodesia. By absorption tests two groups were determined, one including the majority of the stock melitensis and abortus as well as the Rhodesia strains; the second, the stock paramelitensis plus one so-called abortus, melitensis and two Rhodesian strains. The two groups were tested by thermo-agglutination, peptone agglutination, lactic acid and acid agglutination, and the following summary is made:

"(1) Non-specific agglutination as tested by thermo-agglutination, peptone agglutination, lactic acid agglutination and Michaelis' acid agglutination failed in the primary object of differentiating between *Br. melitensis* and *Br. abortus*.

"(2) Thermo-agglutination was only observed in strains of *Br. paramelitensis*.

"(3) With peptone agglutination no strain gave a positive result.

"(4) The results of lactic acid agglutination and Michaelis' acid agglutination ran practically parallel. No distinction could be observed between *Br. melitensis* and *Br. abortus*. Strains of both of remote origin gave slight agglutination with lactic acid, while recently isolated strains of *Br. abortus* were negative. Very definite agglutination, however, was observed by both methods with *paramelitensis* and *para-abortus* strains, but no differentiation was possible between such strains."

P. W. B-S.

Enrico (Cesare). Ulteriori osservazioni sulla presenza della agglutinine antimelitense e antibang nel siero di sangue dei ratti vaccinati. [**Further Observations on Agglutinins for** *B. melitensis* **and** *B. abortus* **in the Serum of Vaccinated Rats.**]—*Ann. d'Igiene.* 1927. May. Vol. 37. No. 5. pp. 307–311. [9 refs.]

In 1926 the author recorded the results of some experiments in which he inoculated four rats with *B. abortus*, and found that the serum obtained agglutinated this organism and *B. melitensis* in equal titres. After heating the serum to 65° C. for half an hour, no agglutination

occurred. Four other rats were inoculated with *B. melitensis*: the sera from three of these failed to agglutinate either organism, the fourth contained agglutinins for *B. melitensis* only.

In the present paper record is given of a further series of seven rats. Four of these were inoculated with four different strains of *B. melitensis*, and three with different strains of *B. abortus*, by three subperitoneal injections of 0·25, 0·5 and 1 cc. of an emulsion made of one loopful of culture in 5 cc. saline, killed by heating to 60° C. for half an hour. In one of the first group the serum agglutinated both bacilli in a titre of 1 : 400, and after being heated to 65° C. for half an hour this was reduced to 1 : 100 equally for both. The other six, though agglutinating in high titre (1 : 1,800 in one case) before heating, lost all agglutinins after submission to 65° C.

He concludes that agglutination is not a specific biological reaction but a physico-chemical phenomenon and regards *B. melitensis* and *B. abortus* as but varieties of a single organism modified by the environment of passage through man and animals respectively.

H. Harold Scott.

Cerruti (Carlo). **On the Relationship of** *M. melitensis* **and** *B. abortus*.—*Jl. Trop. Med. & Hyg.* 1927. Sept. 15. Vol. 30. No. 18. pp. 230–231. [11 refs.] [Ross Inst., London.]

The author shortly refers to the serological tests carried out in America for differentiating the Brucella organisms and notes that the separation of these into groups has not so far placed the Bacillus of Bang by itself. His experiments were carried out with the two organisms to eliminate if possible any inhibitory bodies in the immune sera, which were sera derived from rabbits.

The agglutinins were isolated by treating the agglutinated organisms with 1 per cent. caustic soda and then washed with a 10 per cent. solution of saccharose; after 2 hours incubation at 42° C. the solution containing the agglutinins was neutralized and the agglutinating strength determined (Ogata). It is stated that 10 to 20 per cent. of the original agglutinins can be isolated. Three strains of melitensis used were from Turin, and three of abortus from Budapest, where there is no undulant fever. With the test it was not possible to distinguish the *M. melitensis* of Bruce from the *B. abortus* of Bang, but this does not mean that they are identical, in view of epidemiological facts, the enormous difference in the infectivity of the organisms, and the failure to cause the specific fever by inoculating *Br. abortus* into man (Nicolle, Burnet & Conseil). The author thinks that undulant fever in Piedmont, Italy, is not derived from goats, but is due to an epizootic abortion of cows infected with *melitensis* and not *abortus*, and he states that the name abortus should only refer to those organisms which are isolated from animals which have aborted and in an area where infectious abortion is epizootic and human undulant fever is unknown; the term melitensis being reserved for Brucella organisms isolated from human cases of undulant fever. He again introduces the compound term *Br. melitensis abortus*.

[The reviewer believes with the author that undulant fever in certain districts is conveyed by bovines and that this infection is of a true melitensis origin, being spread from the goat to the cows and thus indirectly to man.]

P. W. B-S.

CERRUTI (Carlo F.). Ancora sulla questione della differenziazione del "B. abortus" dal "B. melitense" mediante un saggio di agglutinazione aspecifica. [**On the Differentiation of** *B. abortus* **from** *B. melitensis* **by Non-specific Agglutination.**]—*Pathologica.* 1927. May 15. Vol. 19. No. 427. pp. 216–218. [1 ref.]

The author has not been able to confirm the findings of VERCELLANA and ZANZUCCHI as regards differentiation by means of non-specific (lactic acid) agglutination [this *Bulletin*, Vol. 24, p. 112]. The differences from his tests proved no greater between the organisms than those between various strains of the same organism. [No protocols are given.]

H. Harold Scott.

ARNOLD (Lloyd) & MILLER (W. E.). *B. melitensis* and *B. abortus* **Agglutinins in Dispensary Patients.**—*Proc. Soc. Experim. Biol. & Med.* 1927. June. Vol. 24. No. 9. pp. 836–837. [2 refs.] [Univ. Illinois College of Med.]

The blood used was that from ordinary Wassermann tests of out-patients in Chicago. Of 200 sera, using dilutions from 1 in 10 to 1 in 160, fourteen were positive. Three were from pregnant women; dilution 1 in 40. From this it is concluded that 7 per cent. of the average population have a specific response to the group. [Dilutions less than 1 in 30 are of doubtful value (or 1 in 60, Carpenter); this would reduce the positives by 8, viz., 3 per cent.]

P. W. B-S.

LONERO (G.). Sulla setticemia da Bang o da Bruce. [**Infection by** *B. abortus* **and** *B. melitensis.*]—*Riforma Med.* 1927. June 27. Vol. 43. No. 26. pp. 603–605. [14 refs.] [Univ. Bari (Italy).]

The author has repeated the tests of primary agglutination, agglutination after heating to 65°–70° C., and non-specific agglutination, and can determine no valid differences in the behaviour of the organisms. He used four strains of each. He adds his support to the conclusion that the bacilli are mere varieties of a single species, *Brucella melitensis* s.s. and *B. melitensis abortus*, the former being pathogenic for man and animals, the latter, for all practical purposes, pathogenic for animals only.

H. Harold Scott.

ROSS (G. R.). **A Serological Study of Undulant Fever in Southern Rhodesia.**—*Jl. of Hyg.* 1927. Oct. Vol. 26. No. 4. pp. 403–419. [24 refs.] [London Sch. of Hyg. & Trop. Med.]

The author here gives fuller details of his serological study of the organism to which the undulant fever in South Rhodesia is due, and of the relationship of *Br. abortus* to *Br. melitensis*. He worked with 5 strains of *Br. melitensis* (2 from England and 3 from South Africa), 3 strains of *abortus* (2 from England and 1 from Africa), and 1 of *para-melitensis* (England). He was able to divide these (as has been elsewhere reported) into *Br. melitensis*, *Br. abortus* and *Br. para* forms

(*melitensis* and *abortus*) by agglutination absorption tests which are fully detailed. The two latter were quite distinct from the two former groups.

The investigation of 8 strains obtained from undulant fever patients in hospital at Salisbury, in which there was no suspicion of goat's milk infection, gave very interesting results. In 6 the serum reaction definitely placed them in the *Br. abortus* group, but 2 were quite separate from either *melitensis* or *abortus*, being linked up with the *para-melitensis* group, but serologically indistinguishable from an organism obtained from a case of bovine contagious abortion, which had been termed *Br. para-abortus*. The following sentence is of importance :—

"The results indicate that *Br. abortus*, or a mutant type *Br. para-abortus*, is an important factor in the etiology of undulant fever in Southern Rhodesia, and emphasise the necessity for a wider concept of the disease. Certain Rhodesian observers are inclined to the view that, while the abortus type of undulant fever produces the same type of symptoms as that due to *Br. melitensis*, these symptoms on the whole are milder than in *melitensis* infection, and that infectivity is not so great. No case of accidental infection of hospital or laboratory personnel has yet been reported."

It is likely that in the group there are two antigenic substances which give rise to very different reactions, possibly a heat stabile and heat labile, causing the coarse and fine flocculation noted by Felix with other organisms, and here described as group S, including the melitensis abortus forms and group R, or mutant para-melitensis and abortus types.

From this very careful investigation it appears that the form of undulant fever seen in Southern Rhodesia is definitely separated from that of the Mediterranean in that the infection is of bovine origin; the causative organism is generally of the abortus type and it tends to show clinical differences. It remains to be proved whether this holds good for other parts of South Africa where goats are more used.

P. W. B-S.

Carpenter (C. M.) & Parshall (C. J.). **A Study of Milk from Cows showing no Agglutinins for *Brucella abortus* in their Blood Serum.** —*Cornell Veterinarian.* 1927. Apr. Vol. 17. No. 2. pp. 234–235. [5 refs.] [N.Y. State Vet. Coll., Cornell Univ.]

It has been noted by various investigators that the percentage of infected milk from cows showing agglutinins in the blood for *Br. abortus* is high, namely, from 29 to 83 per cent.

The authors carried out converse experiments in which they found that no animals were passing out infected milk which did not give evidence of blood infection at 1 in 60. This conclusion was founded upon the examination of 18 cows. They conclude that if the blood reaction is negative at that dilution there will be no infection of the udder.

[This is not borne out by a study of the table 3 in the report of Carpenter & Baker, for out of 16 animals examined 2 gave positive milk and negative blood, and 2 gave positive blood with negative milk.]

P. W. B-S.

CARPENTER (C. M.) & BAKER (D. W.). **A Study of *Brucella abortus* Infection in Milk from Fifty Herds supplying the City of Ithaca, New York.**—*Cornell Veterinarian.* 1927. Apr. Vol. 17. No. 2. pp. 236–247. [12 refs.] [Diagnostic Laboratory, N.Y. State Vet. Coll., Cornell Univ.]

From Ithaca, N.Y., several authors have reported cases of undulant fever in which they have isolated an organism indistinguishable from *Br. abortus*. The milk from 50 herds of cows was tested: one pint of the mixed milk of each herd daily for twenty to thirty days. Both the centrifuged deposit and cream layer were examined by guineapig inoculations and culture methods. The results were: (1) *Br. abortus* was found in the milk of nine herds; (2) the strains of *Br. abortus* from two of the herds supplying milk to cases of undulant fever were markedly virulent to guineapigs, the lesions being similar to those produced by porcine and human strains of *Br. abortus*. The strains from seven other herds were similar to those found in the majority of bovine infections; (3) the cream was more satisfactory for examination than the milk sediment.

P. W. B-S.

GRÄUB (E.). Infektionen beim Menschen durch den Bazillus des infektiösen Abortus Bang. [**Human Infection with Bang's Bacillus.**]—*Schweiz. Arch. f. Tierheilk.* 1927. July. Vol. 69. No. 7. pp. 394–395.

The author quotes cases described by GIRAUD, CARPENTER & MERRIAM and CASTELLI (1926), also HALL & BLACK (1927), but brings forward nothing new.

P. W. B-S.

TROPICAL AND ENDEMIC TYPHUS.

HONE (Frank S.). **Endemic Typhus Fever in Australia.**—*Med. Jl. Australia.* 1927. Aug. 13. 14th Year. Vol. 2. No. 7. pp. 213–226. [14 refs.]

This is a well reasoned paper, by the Chief Quarantine Officer, S. Australia, on the etiological and epidemiological characters of the typhus-like fever prevalent in Australia. The symptoms and diagnostic features are also described. Much of it has already been published by himself and MOORE. He was unable to get the Health authorities to make the disease notifiable, but from a questionary which was sent out he obtained reports of 81 cases with 5 deaths. The information established that it was a " place " disease, associated in some way with the prevalence of rats and mice ; and that foodstuffs had only an indirect influence in the attraction of these rodents. The rodent at times harbours the infection and the cases tend to occur at certain seasons and localities in little epidemics. Finally it was apparent that the disturbance of material and the rodent population plays an important part in the production of fresh cases. The author gives very full tables of statistics and goes into the historical evidence from other countries. These seem to demonstrate that all the " typhus-like " groups belong to the same family and are in fact the same disease in different parts of the world (spread probably by different ectoparasites). The importance of the character of the *B. proteus* used for the diagnosis, whether indol producing or not, as emphasized by FLETCHER & LESSLAR, is referred to as dividing the cases into two groups [see this *Bulletin*, Vol. 24, p. 123]. MEGAW classified the groups according to the carrier—louse, tick or mite.

P. W. Bassett-Smith.

MOORE (K. R.). **Report on a Series of Cases resembling Typhus Fever occurring in Perth and Fremantle, W.A., from November, 1926, to March, 1927.**—*Health.* Melbourne. 1927. July. Vol. 5. No. 4. pp. 109–116.

In 1916 the author recognized a typhus-like fever in which there was always a positive Weil-Felix reaction. Since that date up to 1927 he has noted 17 fresh cases, 12 in males and 5 in females, with one death. The majority of the cases were connected in some way with foodstuffs, but no two were in the same house and the seasonal prevalence was in the hot months. All gave a positive Weil-Felix reaction and there were apparently two definite endemic centres, at Perth and Fremantle. Wherever there was evidence of the presence of the disease rat infestation was found ; these rats showed many ectoparasites, *Xenopsylla cheopis* and *Ctenopsylla musculi* and lice, as *Polyplax spinulosa* and one mite, *Laelaps echidninus*. The rodents probably act as reservoirs of infection. It was thought that the infection had been brought from Adelaide (an infected port) and that the disease had now become widely distributed.

P. W. B-S.

McGILLIVRAY (W. S.). **The Typhus-Like Epidemics of Australia: a Preliminary Communication.**—*Med. Jl. Australia.* 1927. May 21. 14th Year. Vol. 1. No. 21. pp. 743–744.

The title is more pretentious than the paper in which the author describes some bacteriological investigations of blood taken from typhus-like cases. He found motile, gram-negative, late lactose fermenting bacilli.

P. W. B-S.

BANERJEE (R. N.). **Two Cases of Typhus Fever in Kumaon.**—*Indian Med. Gaz.* 1927. May. Vol. 62. No. 5. pp. 264–265. With 2 charts in text.

The endemicity of typhus in the Kumaon hills has been described by MEGAW. The author notes two further cases treated in hospital, in a school girl aged 12 and a male aged 64. In neither was there any history of tick bites or evidence of lice and the disease did not spread. In both cases the rash was typical and the symptoms were definite. The first recovered; the second died on the 13th day. The Weil-Felix reaction does not appear to have been carried out in the first case and was negative in the second.

P. W. B-S.

JAPANESE RIVER FEVER.

FLETCHER (William) & FIELD (J. W.). **The Tsutsugamushi Disease in the Federated Malay States.**—*Bull. Inst. Med. Res. Federated Malay States.* 1927. No. 1. 26 pp. With 4 plates & 4 charts. [15 refs.] [Inst. Med. Research, Kuala Lumpur, F.M.S.]

The authors give a very clear and concise account of the disease known in Japan as tsutsugamushi fever and by different names in other affected localities and spread by more than one kind of mite. Except for one doubtful case reported by DOWDEN in 1925 no case had been recognized in the Malay States up to 1926.

The authors now describe four cases, three from the same plantation, one of which was fatal. There are excellent plates showing the infested land, the primary sore and the rash, with several temperature charts. Finally the relationship of this disease with what is known as tropical typhus is discussed; the authors consider them to be totally distinct.

P. W. Bassett-Smith.

i. MIYAIRI (Keinosuke) & TAKAHASHI (Sozaburo). [**A Contribution to the Etiological Study of Tsutsugamushi Disease.**]—*Tokyo Iji-Shinshi* (*Tokyo Med. News*). 1927. Jan. No. 2504. [Summarized in *Japan Med. World.* 1927. May 15. Vol. 7. No. 5. p. 142.]

ii. KAWAMURA (Rinya). [**On Miyairi's So-called Tsutsugamushi Protozoa.**] —*Ibid.* No. 2506. [*Japan Med. World.* pp. 142–143.]

i. The authors have found the schizont of a haemogregarine in the enlarged spleen and liver of the field vole. These parasites are believed to be pathogenic as they caused tissue changes (Langhan's cells around the schizonts). They found what were considered to be young schizonts in the organs of human cases in which death occurred within ten days of infection.

ii. An examination of the same material as was supplied to MIYAIRI by the author has shown that the protozoa-like bodies he describes were present not only in the liver and spleen, but also in the lungs. The evidence of their pathogenicity was not confirmed since they were found to be present in the field voles in affected and unaffected areas.

P. W. B-S.

OROYA FEVER AND VERRUGA PERUANA.

HERCELLES (Oswaldo). El gérmen de la verruga peruana. [**The Organism of Verruga Peruana.**]—*An. Facul. de Med.* Lima. 1927. pp. 231–264. With 5 coloured plates.

The author inoculated the blood of patients suffering from Oroya fever or verruga with fever into peptone broth. At the end of 24 hours he saw by dark-ground illumination minute coccoid bodies, 0·2–0·5 microns, actively motile round a central point. After 48 hours they could be seen by the ordinary microscopical examination, and some of them invaded the red cells and moved within them. In three days a thin pellicle formed in the broth and the cocci were exceedingly numerous, and in another 24 hours cohered as zoogloeal masses and lost their motility. Growth was more rapid in glucose-broth, or on glucose-agar with human blood. Cultivation was also made with rabbit's testicle and with haemolysed red cells and in serum with washed red blood-corpuscles, but the best results were obtained with whole blood. The corpuscles are not destroyed by the invasion, but merely serve as carriers to convey the organisms to the bone-marrow where multiplication normally proceeds. By means of an antigen prepared from a culture he obtained positive results by the complement-fixation test.

Haemoculture was positive in febrile cases only; at first he did not obtain growth unless Bartonella were found in the peripheral blood, but later in a patient after 15 days' illness, in whose blood these were not present, but who was still suffering with fever, the results were positive.

The author concludes that Oroya fever and Verruga peruana are different manifestations of one and the same disease, and that the *Bartonella bacilliformis* is the causative organism of it.

[It is rather remarkable that the authors should be so successful in growing an infective organism in ordinary media, such as glucose broth, when the STRONG Commission were unable to do so, though they used all kinds of laboratory media, both in verruga and Oroya fever cases.—P. W. B-S.]

H. Harold Scott.

HERCELLES. Conférence sur la verruga péruvienne. [**Discussion on Verruga Peruana.**]—*Bull. Soc. Path. Exot.* 1927. July 13. Vol. 20. No. 7. pp. 559–575.

This is a more detailed account of the author's paper of 1925 [this *Bulletin*, Vol. 24, p. 624 and above], in which he describes the causal agent of Verruga peruana as a minute coccoid organism. This is called by him *Bartonella coccoidi*, it is found in the verruga tissues and cultivated from the blood of fever cases. The coccoid bodies are thought to be stages in

the growth of the bacillary form commonly seen in the red blood corpuscles. With his cultures he was able to prepare an antigen which was useful for complement fixation. He is strongly in agreement with NOGUCHI in regard to the unity of the two conditions.

P. W. Bassett-Smith.

DA CUNHA (Aristides Marques) & MUNIZ (Julio). Pesquisas sobre Verruga peruana experimental. [**Experimental Investigations in Verruga peruana.**]—*Bol. Biol.* S. Paulo. 1927. Sept. 15. No. 9. pp. 135–146. With 11 text figs.

A culture was obtained on Noguchi's medium for leptospira, and the third subculture was used for inoculation intradermically into the supraorbital region and subcutaneously over the right hip of a Macaque. A raised area was seen in the former situation on the tenth day, and continued to increase in size. On the sixteenth day blood was drawn from the saphenous vein and distributed in Noguchi's and in Nöller's media. Direct smears showed no Bartonella bodies. By the twenty-second day there was a nodule the size of a filbert over the site of the hip-inoculation. Material taken from the supraorbital lesion by puncture and also heart-blood were placed in Noguchi's medium.

The animal was killed and portions of the nodules and of the associated glands were fixed for sections, smears also being made. The latter showed some of the polymorphonuclears and large mononuclears (? endothelial cells) to contain bacillary bodies in large numbers, but not the red corpuscles.

The sections revealed cells with bodies, some like Rickettsia, others bacillary, and some resembling Theileria. These are believed to be stages in the development of the infecting organism. Microphotographs are reproduced showing the characters of the bodies seen in smear, section, and culture.

H. Harold Scott.

DENGUE AND UNCLASSED FEVERS.

EDINGTON (Alex. D.). **"Dengue" as seen in the Recent Epidemic in Durban.**—*Jl. Med. Assoc. S. Africa.* 1927. Sept. 10. Vol. 1. No. 17. pp. 446–448.

The author describes a severe epidemic of dengue which occurred in 1927 at Durban, and was carried rather widely by convalescents. There were at least 40,000 cases, but many were probably not recognized. The symptomatology, which is fully described, is much the same as that of epidemic dengue elsewhere, though haematemesis and melaena sometimes simulating gastric ulcer is unusual. The liver was often enlarged, but there was no true jaundice and liver abscess is said to have been a comparatively common sequel. For treatment "diemenal" a colloidal preparation of manganese and iron, is favourably spoken of, but rest and restricted diet are more important.

P. W. Bassett-Smith.

NICOLAS (Ch.). Six cas d'orchites ou ovarite, complications de dengue. [**Six Cases of Orchitis or Ovaritis, complicating Dengue.**]—*Bull. Soc. Path. Exot.* 1927. May 11. Vol. 20. No. 5. pp. 402–403.

The author describes a small epidemic of dengue in New Caledonia affecting about sixty people, forty being adults and all but seven Europeans. During convalescence five cases of orchitis and one of ovaritis were noted; all cleared up without sequelae.

P. W. B-S.

LEGENDRE (J.). Au sujet de la dengue Ouest-Africaine. [**West African Dengue.**]—*Bull. Soc. Path. Exot.* 1927. Apr. 13. Vol. 20. No. 4. pp. 320–322. [4 refs.]

The author again points out that dengue must not be confounded with phlebotomus fever and combats the view of SULDEY that phlebotomus are the carriers of the fever in the Soudan.

P. W. B-S.

TANAKA (Hirosaku) & TAKAGI (Sampei). **Examination of the Field Boles (?Voles) in the Region in Shizuoka Prefecture where "Akiyami" (Autumnal Fever) prevails endemically. Communication I.** *Aichi Igakkwai Zasshi* (*Jl. Aichi Med. Soc.*) 1926. July. Vol. 33. No. 4. [Summarized in *Japan Med. World.* 1927. Apr. 15. Vol. 7. No. 4. p. 117.]

The author collected 58 specimens of field voles (*Microtus montebelli*) from a region where the fever prevailed endemically; 15 of these were infected with a similar spirochete to that found in Akiyami fever, but further inoculation and cultural experiments were negative. The author considers that the field vole has no importance in the propagation of the disease.

P. W. B-S.

We much regret to announce, as we go to press, the death of Sir Percy Bassett-Smith on December 29th. Sir Percy had served on the staff of the Bureau without a break since the year 1912.

SPRUE.

FAIRLEY (N. Hamilton). **Pernicious Anaemia or Sprue.** [Correspondence.]—*Med. Jl. Australia.* 1927. Apr. 9. 14th Year. Vol. 1. No. 15. pp. 559–560.

Referring to the differential diagnosis between pernicious anaemia and sprue, Fairley finds a colour index above 1 in 56 per cent. of sprue patients. Difficulty in differentiation was only experienced when the alimentary features were atypical. In this group the most reliable clinical features were emaciation or a history of marked loss of weight, the passage of bulky stools, abdominal distension and the complete absence of any neurological signs suggestive of subacute combined degeneration of the cord. Even in latent sprue there is definite limitation on the part of the intestinal mucosa to absorb fat; this becomes obvious directly the fat content of the diet is increased. In 36 consecutive cases throughout all periods of the disease, during and after treatment, it was shown that the fat averaged 47·1 per cent. of the dried faeces. Of this 7 per cent. represented neutral fat, 17·3 per cent. free fatty acid, and 22·8 per cent. was in the form of combined fats. Defective fat absorption is not a feature of pernicious anaemia. The blood in sprue may show the characteristics of an aplastic pernicious anaemia and the bone marrow the corresponding changes. In the long bones gelatinous, greenish marrow deficient in erythroblastic elements is observed. On the other hand, evidence of intravascular haemolysis is limited in sprue; the deposition of haemosiderin in the liver and kidney is also not marked, whilst out of 16, nine cases gave VAN DEN BERGH readings of under 0·5 units and seven exceeded this figure.

The fractional test meal affords most important data from the standpoint of differential diagnosis. In pernicious anaemia the achlorhydria is a true *achylia gastrica*, due to a secretory defect. Analysis of total and free acid curves in a consecutive series of 26 cases of sprue demonstrated that four were hyperchlorhydric, seven normal, and eight hypochlorhydric. In the achlorhydria of sprue, hydrochloric acid is being secreted efficiently, and its absence from the gastric content is dependent on neutralization by alkaline fluids derived from the duodenum. Experience in Bombay was convincing that sprue and pernicious anaemia are distinct clinical entities.

P. H. Manson-Bahr.

BAUMGARTNER (E. A.) & SMITH (Glenn D.). **Pernicious Anemia and Tropical Sprue.**—*Arch. Intern. Med.* 1927. Aug. 15. Vol. 40. No. 2. pp. 203–215. [20 refs.]

This paper concerns itself chiefly with the supposed identity of sprue and pernicious anaemia. The pathology of pernicious anaemia is better understood than the cause, while the yeast *Monilia psilosis* has been claimed as the cause of sprue and has been demonstrated in the stools of both diseases.

Nine of the 15 cases of sprue cited had a colour index of over 1, and five showed an index less than this figure. Four of the patients had a count below two million red cells and five below three millions. Eight cases showed a diminution in the number of leucocytes, and blood platelets; in seven cases there was a definite rise in the number of leucocytes. Three of the 15 cases had achylia.

The authors have confirmed the observation that in sprue there is a low calcium content (about 7·3 mgm. per 100 cc. of blood). In all the cases a history of ulcers in the mouth was obtained. Definite reactions showing tetany have been elicited only in three. In all but one, cultures from faeces were positive for Monilia. The blood calcium in 15 cases of pernicious anaemia, taken for comparison, was found within the normal limits. In four, Monilia was grown from the faeces by culture. The authors believe that the anaemia in sprue is aplastic.

The achylia in sprue is not as constant as in pernicious anaemia. In hree of the most anaemic the presence of free hydrochloric acid was proved, which rules out the possible diagnosis of pernicious anaemia. The loss of weight in sprue is often great. In half the cases the loss was from one-fourth to one-half of the patient's average weight. Neurological changes in sprue cases were indefinite, though in one some signs of degeneration of the posterior columns of the cord were seen. Tetany was never seen in pernicious anaemia. Mental depression, pronounced in sprue, is not found in pernicious anaemia. Clinically patients with sprue have a different history from those with pernicious anaemia. Diarrhoea in sprue is much more marked and constant, loss of physical strength and mental depression more evident. The early morning diarrhoea and frothy stools in sprue are characteristic.

The severe loss of weight in sprue was not met with save in one case of pernicious anaemia. The characteristic appearance of the tongue in pernicious anaemia was not present in cases of sprue. The small liver stressed by some as present in sprue was not specially noticeable in this series. Differentiation of these two diseases is sometimes difficult.

P. H. M-B.

Holst (J. E.). Ein in Dänemark aufgetretener Fall von Sprue. [**Case of Sprue arising in Denmark.**]—*Acta Med. Scandinavica.* 1927. Vol. 66. No. 1–2. pp. 74–99. [43 refs.]

After reviewing fully the literature of the geographical distribution of sprue and citing instances of its occurrence in countries outside the tropical zone, the author minutely describes the case of a patient recently observed by him.

A woman of 33 years, who was born and bred in Denmark and had never left the land of her birth, had suffered for many years from periodical attacks of diarrhoea and vomiting, and from spastic paraplegia of the lower extremities. From time to time the motions were very light-coloured and for the past three years there had been undue sensitiveness of the tongue with minute buccal aphthae. These symptoms were accompanied by a considerable degree of anaemia of the Addisonian type while more intimate observations showed that the daily amount of faeces passed was greatly in excess of the normal. A moderate pyrexia accompanied the intestinal symptoms and biochemical observations on the nitrogen output indicated a very considerable degree of nitrogen loss. Cramps and tetany were both observed and, in spite of dietetic and other measures, the patient gradually sank. Beyond great emaciation and spontaneous fracture of the ribs, little abnormal was disclosed at autopsy. The contents of the jejunum consisted for the most part of fresh blood.

No features of importance became apparent on microscopical section of the various organs. Analysis of the faeces showed on an average

8·1 per cent. of fat, of which 30–40·2 per cent. were neutral fats, 35·7–52·5 per cent. fatty acids, and 17·5–25·2 per cent. soaps.

The author considers that no question of the correctness of the diagnosis can be entertained and discusses the differentiation of non-tropical sprue from Addisonian anaemia and pancreatitis.

P. H. M-B.

Low (G. Carmichael) & Benton (D.). **Sprue in Natives.**—*Jl. Trop. Med. & Hyg.* 1927. Aug. 1. Vol. 30. No. 15. p. 193.

Cases of sprue amongst native races are uncommon. The subject of the present report was a fireman from Calcutta. The tongue presented typical lesions. Together with the fatty, frothy stools there was the corresponding typical anaemia. Chemical analysis of the excreta showed an excess of fatty acids over neutral fats.

P. H. M-B.

Baumgartner (E. A.). **Parathyroid in the Treatment of Tropical Sprue.**—*Amer. Jl. Trop. Med.* 1927. May. Vol. 7. No. 3. pp. 181–191. With 2 text figs. [13 refs.]

In one case of sprue Collip's preparation of parathyroid was given by intramuscular injection in doses of 5 cc. The patient, a lady, showed signs of tetany; both Trousseau's and Chvostek's signs were evident. The blood calcium, which was 6·2 mgm. per 100 cc. of blood, rose definitely and quickly after the first three injections to 8 mgm. The patient made a good recovery. In the second case the parathyroid was given in the form of the dry extract, grain one-tenth thrice daily. No general improvement in the condition of the patient was noted, but a general fall in the ionic calcium was observed in spite of the simultaneous exhibition of calcium lactate. In the third case no alteration in the blood calcium was noted till the patient had been put on a special diet. The dry extract of parathyroid is not so impotent as has been maintained, and it may be dangerous if administered over a long period.

P. H. M-B.

Sandler (S. A.). Die Behandlung der Sprue mit einem Aufguss der Schalen von Granatäpfeln. [**Treatment of Sprue with Infusion of Rind of the Pomegranate.**]—*Pensée Méd. d' Usbekistane.* Tashkent. 1927. Vol. 1. No. 3–4. German summary p. 227. [In Russian pp. 19–27.]

During the last two years observations have been made upon the therapeutic action of an extract of pomegranate rind. The therapeutic principle appears to be an acid which is combined with calcium and potassium especially in the rinds of the coarser varieties. A tincture of the rind was dispensed in strengths from 75–35 per cent. according to the severity of the illness and appeared to have a definite therapeutic effect. The reaction of the stool was altered on the third day and a definite change in the consistency was noted from the fourth to the eight day. With an improvement in the blood condition and an increase in the body weight the patients were able to leave the Clinic in six weeks.

P. H. M-B.

Low (G. Carmichael) & Cooke (W. E.). **Blood Transfusion in Sprue.**—*Lancet.* 1927. Nov. 5. pp. 960–961. [1 ref.]

In the later stages of sprue a blood picture very like that of pernicious anaemia often develops and is very dangerous and often fatal. Whole blood transfusions have been used for some time in pernicious anaemia, and one of the patients whose case is to be described was transfused before the authors saw him. Notes of three cases, all European men, are given :—

Case 1. aet. 58. Sprue began in 1917. In 1923 patient was admitted to a hospital in England with red cells 600,000 and haemoglobin 22 per cent. Three whole blood transfusions were done in 27 days, and 4 months later the count was r.c. 1,460,000 and hg. 56 per cent. April, 1924, admitted to Hospital for Tropical Diseases very ill and wasted, with r.c. 2,440,000 and hg. 65 per cent., and after "usual line of treatment" left much improved in August (r.c. 4,160,000 and hg. 80 per cent.). In the next two years two short periods of treatment. July, 1926, re-admitted, and, other methods failing, on August 6th he was transfused (r.c. 2,300,000 and hg. 65 per cent.).* 700 cc. were introduced. September 7th, r.c. 4,200,000 and hg. 80 per cent.; discharged in following week. He had kept well up to September, 1927.

Case 2. An old sprue case dating from 1920. December, 1922, admitted to Hospital for Tropical Diseases and again on five other occasions. September, 1926, while in Scotland, rapid relapse ; re-admitted on October 2nd unconscious, with r.c. 940,000 and hg. 20 per cent. Glucose saline solution was introduced by vein, and since no improvement followed, 730 cc. of citrated blood, which rapidly restored him to consciousness. He steadily improved, and on October 10th r.c. 2,130,000 and hg. 50 per cent. On February 10th, 1927, r.c. 5,240,000 and hg. 95 per cent. At the time of writing, no relapse.

Case 3. Symptoms of sprue began in 1925, and possibly in 1920. Admitted July 5th, 1927, wasted and anaemic ; typical picture of severe sprue. r.c. 2,540,000, hg. 65 per cent., weight 7 st. 3 lb. July 12th, citrated blood transfused, but symptoms of haemolysis and anaphylaxis appeared at once and needle was withdrawn when only 5 cc. had been given. After the passage of severe symptoms he began steadily to improve ; 41 days later r.c. 4,460,000 and hg. 85 per cent. ; 10 lb. weight gained.

The authors conclude that blood transfusion has now been established as a most important method of treatment in sprue. It would appear from Case 3 that the amount of blood given is not the important factor. The blood injected appears to stimulate the blood-forming tissues of the body, possibly as proteins do in protein shock treatment. A slight rigor and pyrexia frequently follow transfusion.

The paper concludes with some remarks on the use of liver extracts in the form of liver soups, which were extensively used by Manson, and on Batavia powder, the old Peter Sys's cure, which is prepared from lime.

A. G. B.

* Dr. Manson-Bahr informs us that for several years he has injected human blood intramuscularly in sprue anaemia and that a case under his care in the Hospital for Tropical Diseases was transfused intravenously by him for sprue anaemia on March 24th, 1926, prior to the cases described in the paper under review. A paper on this and four cases of a similar nature has been contributed for the meeting of the Far Eastern Association of Tropical Medicine on December 5th, 1927, in Calcutta.

KALA AZAR.

CLARK (Francis). **Kala-Azar.**—*Caduceus Jl. Hongkong Univ.* 1927. Mar. Vol. 6. No. 1. pp. 25–29.

Since his arrival in Weihaiwei in December, 1924, the author has encountered many cases of kala azar as stated in his report for 1925. During this year 100 cases were seen at the Civil Hospital while in 1926 a further 71 cases presented themselves. The leased territory of Weihaiwei consists of a 72 mile belt of coast line 10 miles in width and the island of Liu-Kung. The area is 254 square miles and the population 154,416. The cases came from practically all parts of the colony. Of 85 treated cases the youngest was 6 years of age and the oldest 55.

C. M. Wenyon.

SAVAGE (P.). **Kala-Azar in the Simla Hills.**—*Indian Med. Gaz.* 1927. July. Vol. 62. No. 7. pp. 382–384.

Two cases are described, both of which appeared to be kala azar though parasites were demonstrated in one only. Their interest lies in the fact that all the evidence points to the disease having been contracted at Sanawar at a height of 5,760 feet in the Simla Hills. The only sandfly identified in the locality is *Phlebotomus major* which may be suspected as a carrier of the disease.

C. M. W.

MARTÍNEZ GARCÍA (P.). Consideraciones sobre el diagnóstico clínico del kala-azar infantil. [**Clinical Diagnosis of Infantile Kala Azar.**] —*Rev. Méd. de Barcelona.* 1927. Aug. Year 4. Vol. 8. No. 44. pp. 172–181. With 8 text figs. [4 refs.]

The paper is a continuation of a discussion which has been taking place in Spain as to the possibility of accurate diagnosis of infantile kala azar on clinical grounds alone. The author describes four cases which clinically appeared to be kala azar. Spleen puncture revealed leishmania in two of the cases and not in the others which proved to be some other disease.

C. M. W.

LA ROSA. [Sulla leishmaniosi interna infantile in Catania dall'anno 1909 al 1926.] **Infantile Kala Azar in Catania, 1909-1926.**]—*Riv. Sanitaria Siciliana.* 1927. June 25. [Summarized in *Ann. di Med. Nav. e Colon.* 1927. July–Aug. Year 23. Vol. 2. No. 1–2. pp. 115–117.]

Observations on infantile kala azar in Catania (see this *Bulletin*, Vol. 24, p. 131) disclose the fact that it is responsible for a mortality of 1·66 per 10,000 inhabitants and for 87 of every 10,000 deaths. The mortality is highest in spring and summer and decreases in the autumn and winter. The heaviest mortality occurs amongst children up to three years of age. The disease attacks by preference the children of the poor, and occurs in endemic form in all the cities and towns.

C. M. W.

Boletin del Instituto de Clínica Quirúrgica. Buenos Aires. 1927. Vol. 3. Nos. 21–25. pp. 393–469.—**VI. Leishmaniosis.** [Also issued as *3a Reunión, Soc. Argentina Patol. Regional del Norte, Tucumán, Julio, 7, 8 y 10, 1927.* pp. 285–361.]

Section VI of these Proceedings covers 77 pages and deals chiefly with cutaneous leishmaniasis as observed in S. America. Bernasconi describes a method of preparing solutions of tartar emetic which is a modification of that of Chavez who sterilized the drug with chloroform and used it in 5 per cent. solution. His method is as follows. Twenty gm. of the drug freed from coarse particles is placed in a sterilized wide-mouthed, stoppered bottle with 10 cc. of chloroform. It is left 48 hours during which it is gently agitated from time to time. The drug is then dissolved in 375 cc. of distilled water to which is added 25 cc. of a 10 per cent. solution of citrate of soda. Of this solution a dose of 1 cc., increased in some cases to 4 cc., can be given without untoward symptoms. The same author in conjunction with Soto describes a case of oriental sore in a woman who had recently come to the Argentine from Syria ; Bordas reviews at length the present position of knowledge of leptomonas of plants ; Puente describes the clinical appearances of cutaneous leishmaniasis, illustrating his remarks by a series of photographs ; Escomel emphasizes the differences between oriental sore and the American leishmaniases and under the latter heading distinguishes uta and espundia ; Dusseldorp records a case of cutaneous leishmaniasis with ocular complications in the form of small nodules on the lids and conjunctivae; unfortunately the diagnosis was purely clinical no leishmania being discovered in any of the lesions. Veiga records a case of cutaneous leishmaniasis cured by injections of antimosan ; Mazza gives another instance of cutaneous leishmaniasis in a dog and adds the interesting discovery of a similar infection in a horse which had a sore below the inner corner of the left eye. Leishmania were found in smears made from the lesion ; Argañaraz describes a case of muco-cutaneous leishmaniasis which was cured by intramuscular injections of sulfarsenol.

The various articles contain very little new information apart from that of the infection of the horse noted in Mazza's paper.

C. M. W.

Shortt (H. E.). **The Incubation Period of Kala-Azar.**—*Indian Med. Gaz.* 1927. Sept. Vol. 62. No. 9. pp. 507–508.

A young man 22 years of age who had lived all his life in Shillong, a non-endemic area, left for Gauhati, a highly endemic area, in October, 1922. He remained at Gauhati for a week, after which he returned to Shillong. In June, 1923, a similar visit was paid to Dibrugarh, an area of low endemicity, the journey to and fro being by mail train. Two or three weeks after his return to Shillong from Dibrugarh he was attacked by fever, which lasted without intermission for about a week. After an interval of two or three days the fever returned and continued intermittently for nearly a year. There was emaciation, weakness and enlargement of the spleen. In June, 1924, the condition was diagnosed by spleen puncture as kala azar. As regards the incubation period, there are thus two possibilities. It was either 9 to 10 months or 2 to 4 weeks. In view of the low endemicity of kala azar at Dibrugarh it is

concluded that infection took place at Gauhati. This is in accord with the general experience of kala azar though it is rarely possible to find the essential details so clearly cut and definite.

C. M. W.

NAPIER (L. Everard) & HALDER (K. C.). **The Cure Rate in Kala-Azar.** —*Indian Jl. Med. Res.* 1927. July. Vol. 15. No. 1. pp. 187–196. With 2 text figs. [3 refs.]

The statement is often made that antimony treatment of kala azar has converted a 95 per cent. death-rate into a 95 per cent. cure rate. The authors state that the figure is too high in each application, for even amongst cases in which the disease is well established the natural cure rate is probably not less than 10 per cent. In order to obtain information as to the cure rate amongst treated cases 700 cards were dispatched in 1926 to patients who ceased to attend the kala azar out-patient department of the School of Tropical Medicine in Calcutta in 1924. Of these 174 were returned with satisfactory replies giving the information that 101 were in a good state of health, 36 had had fever and further treatment and 37 had died. The routine treatment consisted of injections of a 2 per cent. solution of sodium antimony tartrate twice weekly, the dose being increased gradually from 1 cc. to 5 cc. or to the limit of the patient's tolerance. An examination and analysis of the records which had been kept of the 174 patients shows that even if treatment stops at an early stage in the course of injections there is a reasonable chance of cure, that a total relative dose of 3 gm. per 100 lbs. of body weight (about 30 injections in an average adult) will effect an 80 per cent. cure rate and that prolongation of treatment beyond this point will only produce a slight increase in the cure rate.

C. M. W.

NAPIER (L. Everard). **The Pentavalent Compounds of Antimony in the Treatment of Kala-Azar. II. No. 693 (Von Heyden) ; an Analysis of the Results of the Treatment in the First 61 Cases.**—*Indian Jl. Med. Res.* 1927. July. Vol. 15. No. 1. pp. 181–186. [1 ref.]

The compound is an amine salt of para-amino-phenyl-stibinic acid. It is in the form of a light brown powder and contains about 40 per cent. of metallic antimony. It is easily soluble in distilled water and if kept sealed in the ampoules as supplied it does not change throughout the year in Calcutta. The toxicity of the drug as tested in mice is very low, the minimum lethal dose being more than 10 times as great as that of sodium antimony tartrate.

In the treatment of kala azar in adults an initial dose of 0·1 gm. was followed by a dose of 0·2 gm. and subsequent doses of 0·3 gm. The majority of the 61 cases referred to in this paper received 10 to 11 injections. The results of treatment were that 58 were discharged cured, 2 failed to respond to treatment and 1 did not complete the course. The drug is of considerable value in the treatment of kala azar and is well tolerated by the patients in comparatively large doses. With the exception of vomiting there are no disagreeable symptoms associated with its administration. A course of 10 injections totalling 2·7 gm. of the compound should produce a cure rate of at least 93·33 per cent.

C. M. W.

Low (G. Carmichael). **A Series of Kala-Azar Cases treated by Antimony Derivatives.**—*Jl. State Med.* 1927. Oct. Vol. 35. No. 10. pp. 591–594.

The paper describes the treatment of six cases of kala-azar in London with either stibosan (von Heyden 471) or neostam (stibamine glucoside of Burroughs Wellcome & Co.). Three of the cases were treated throughout with neostam and two with this drug after recurrence of symptoms following injections of stibosan. One of the patients, a child (see this *Bulletin*, Vol. 24, p. 632), was treated with intramuscular injections of stibosan. No bad results followed this line of treatment and as in the other five cases, a cure was obtained. The dosage of the intramuscular injections was 0·025 gm. increasing to 0·075 gm. Injections were made every third day, a total of 2 gm. being given.

C. M. W.

Smyly (H. Jocelyn). **The Administration of Tartar Emetic by Various Routes.**—*Ann. Trop. Med. & Parasit.* 1927. July 22. Vol. 21. No. 2. pp. 171–178. [16 refs.] [Peking Union Med. Coll.]

The experiments were designed to discover the best route for the administration of tartar emetic to infants in whom intravenous injections were found to be impossible. Rectal injections were given in three cases but failed owing to the antimony being absorbed in insufficient quantities. After preliminary experiments on rabbits intramuscular injections were tried in one case. The injection was always followed by pain, usually slight but lasting for some hours : sometimes it was severe and on one occasion lasted for seven days and was accompanied by tenderness, swelling and superficial oedema. After a trial on rabbits the intraperitoneal route was adopted in one case, which had been treated by 7 injections into various veins ; further intravenous treatment was found to be impossible in the child which was 6 months old. Two injections were given intraperitoneally after which the patient was discharged to the out-patient department where the intraperitoneal treatment was continued thrice weekly during the course of about one month. The total amount of drug given was 264 mgm. (67 mgm. intravenously during first 15 days of treatment). The child was in good health over 2 years later. The injections were made in the middle line of the abdomen just below the umbilicus, the skin being anaesthetized with novocaine. The solution is prepared by adding a requisite quantity of a 2 per cent. solution of chemically pure sodium antimonyl tartrate to 60 cc. of saline in a large syringe. This gave a dose of 12 mgm. in 0·02 per cent. solution. There appeared to be little irritation, for the child generally stopped crying during the injection. It is not claimed that the intraperitoneal injection is preferable to the intravenous but is to be recommended when intravenous therapy is impracticable.

C. M. W.

Chatterjee (R. P.). **Arrhythmia of the Heart after Antimony Injection in a Kala-Azar Patient.**—*Med. Rev. of Reviews.* Calcutta. 1927. Apr. Vol. 2. No. 4. pp. 171–172.

The patient was a Hindu boy of 12 years of age who was given three injections of urea stibamine. When seen a few days after the third injection it was noted that the pulse was 36 though the heart was normal,

except that it dropped every third or fourth beat. The antimony was stopped for a week and two injections of atropine 1-100 grain were given. The arrhythmia disappeared completely, but returned the day after a further injection of 0·05 gram of urea stibamine. No atropine was given this time, the heart returning to normal more slowly.

C. M. W.

YOUNG (Charles W.) & HERTIG (Marshall). **Kala Azar Transmission Experiments with Chinese Sandflies (Phlebotomus).**—*Proc. Soc. Experim. Biol. & Med.* 1927. June. Vol. 24. No. 9. pp. 823–825. [5 refs.] [Peking Union Med. College.]

Feeding sandflies on infected hamsters showed that *Phlebotomus major* var. *chinensis* was more readily infected with *Leishmania donovani* than *P. sergenti*. By allowing the flies to feed artificially on emulsions of the spleen of infected hamsters the percentage of infections in both flies was increased while *P. perturbans*, which has never been fed on mammals, was also infected. *P. major* is very susceptible to leishmania infection after natural feeds (195 positive out of 348) and artificial feeds (131 positive out of 157). *P. sergenti* is less susceptible after natural feeds (16 positive out of 661) and after artificial feeds (169 out of 349). In *P. sergenti* there is a tendency for the infection to die out after the 5th or 6th day, whereas it tends to persist in *P. major*. Of the two sandflies, *P. major* refeeds with reluctance while *P. sergenti* does so readily.

Feeding infected or potentially infected sandflies on healthy hamsters failed to transmit the infection. In all, 413 hamsters were exposed to infection by these flies, and in no case had infection taken place during an observation of six months. Of 180 hamsters inoculated intraperitoneally with positive sandflies 41 developed visceral infections with leishmania. Five hamsters were inoculated by scarification with two *P. major* females containing flagellates but no infection resulted. A total of 904 females and 89 males of *P. sergenti* from a kala azar region were examined by smears or by inoculation into hamsters or by both methods but no evidence of leishmania infection was obtained. About 200 other sandflies (*P. major* and *P. sergenti*) were negative for flagellates. A large proportion of *P. perturbans* which feeds readily on toads, were heavily infected with a crithidiform flagellate. No infection occurred after inoculating 32 hamsters intraperitoneally with 124 wild *P. perturbans*.

C. M. W.

HINDLE (Edward) & PATTON (W. S.). **Transmission Experiments with Chinese Kala Azar.**—*Proc. Roy. Soc.* 1927. Aug. 2. Ser. B. Vol. 102. No. B. 713. pp. 63–71. [4 refs.] [Members Kala Azar Commission of the Royal Society.]

With sandflies which had fed on hamsters, experimentally infected with leishmania and showing parasites in the peripheral blood, attempts were made to transmit the infection to healthy hamsters. Both *Phlebotomus major* var. *chinensis* and *P. sergenti* were employed. The transmission was attempted in four ways, viz., by allowing the flies to feed on the hamsters, by rubbing the flagellates from the flies into the excoriated skin, by introducing intact or crushed sandflies to the mouth, by inoculating the flagellates intraperitoneally. Hamsters exposed to infection were kept under observation for about six months

after which they were killed and examined by the smear and culture methods. Of 46 hamsters which were inoculated intraperitoneally with the gut contents of *P. sergenti* which had fed once (two to seven days previously) on an infected animal four became infected. All the other experiments were negative. It is noted that considering the small proportion of animals infected by the inoculation of the whole gut contents of several sandflies containing flagellates it is not surprising that up to the present feeding experiments should have given negative results. Even when fairly large doses of culture forms are used the subcutaneous injection is only about one-tenth as effective as the intraperitoneal and when the dose is decreased, as must be the case when the inoculation is effected by the bite of the sandfly, the chances of infecting the animals by this method would be still further reduced. It should be remembered, however, that when present in nature sandflies are often very numerous and a person may be bitten by a hundred or more in a single night.

C. M. W.

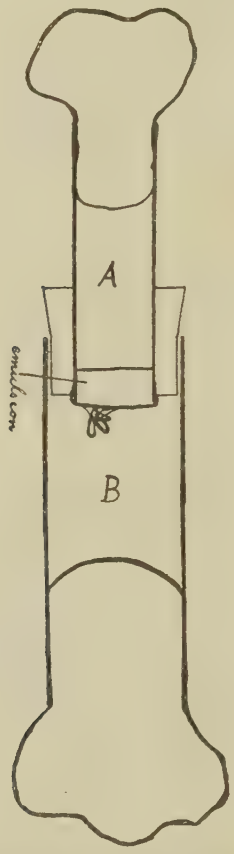
ADLER (S.) & THEODOR (O.). **The Behaviour of Cultures of Leishmania sp. in** *Phlebotomus papatasii.—Ann. Trop. Med. & Parasit.* 1927. July 22. Vol. 21. No. 2. pp. 111–134. With 3 text figs. & 9 figs. on 2 plates. [6 refs.] [Hebrew Univ., Jerusalem.]

As noted previously (this *Bulletin*, Vol. 24, p. 645) the authors have shown that *Phlebotomus papatasii* may be infected with leishmania by feeding them on cultures of the organism. In the present paper further details of the experiments are given.

The method of feeding sandflies on cultures is shown in the diagram. A glass tube A, closed at one end by dried, shaved rabbit-skin is fitted through a stopper into a wide tube B. Ether is added to both tubes which are then plugged with cotton wool. When the ether has completely evaporated, the apparatus is sufficiently sterile for use. Emulsion of flagellates is placed in tube A and the sandflies in tube B. The flies feed best on the second day after birth at a temperature of 27° to 30° C. The emulsion of flagellates is prepared by mixing one volume of culture with 10 volumes of saline solution. The mixture is centrifuged and the supernatant fluid removed. This is repeated three times after which the flagellates are counted in a haemacytometer. Inactivated rabbit serum, defibrinated rabbit blood heated at 56° C. for half-an-hour, or inactivated immune serum coloured with a trace of defibrinated blood (in order to make the fed flies recognizable) is added to make concentrations of 200,000, 100,000 or 50,000 parasites per cc. On an average the feed of *P. papatasii* consists of 0·1 cc. If tube A is contaminated with bacteria the flagellates ingested are destroyed in 12 to 16 hours. Of 75 sandflies which fed on cultures of *L. tropica* 34 (45·3 per cent.) were positive. The destruction of *L. tropica* in the sandfly may be fairly rapid for they may have disappeared in 12 hours. Hence the question of a natural immunity of certain flies is raised. Of 21 sandflies fed on emulsions of *L. tropica* in inactivated serum of patients with experimental leishmaniasis, 29 per cent. were infected. Of 6 which fed on emulsions in immune rabbit serum, only one became infected. In 39 out of 56 positive sandflies, the parasites behaved in exactly the same manner as when taken up from an oriental sore and the flagellates which developed were chiefly long forms, many of them having the large nucleus which caused a bulging of the body.

The course of development of *L. tropica* in cultures was changed in the sandfly and moulded into the type assumed by *L. tropica* ingested by the fly from the sore.

Seven experiments on human volunteers were made to test the virulence of cultural forms of *L. tropica*. All these gave negative results so that it can be concluded that the pathogenicity of *L. tropica* for



Apparatus for feeding sandflies on culture. Three-quarters of natural size.
[Reproduced from the *Annals of Tropical Medicine and Parasitology*.]

man is greatly diminished in direct cultures and in first generation sub-cultures which were the cultures used. Two volunteers were inoculated with flagellates from sandflies infected from cultures. In one an infection occurred. This suggests that the virulence is increased by passage through the fly.

With a strain of *L. brasiliensis*, two strains of *L. infantum* and strains of *L. tropica* experiments were made as to the effect of immune sera on the character of the growth in culture tubes. It has previously been shown that with its own immune serum a strain of leishmania gives a

growth in agglutinated masses. It was thought that this test would serve as a reliable guide to species. In the series of experiments now described there was considerable irregularity, for an *L. tropica* immune serum agglutinated a strain of *L. infantum* and vice versa. Further work is thus necessary to perfect the method of serological diagnosis. It is noted that Napier's formaldehyde test was negative with the serum of immunized rabbits.

Of 33 sandflies fed on rich emulsion of *L. brasiliensis* 21 (64 per cent.) were infected. The infection was limited, however, to the stomach. In two cases where the infection was very heavy, flagellates were found in the lowest part of the cardia, but none in the neighbourhood of the valve, while none were attached to the epithelium. Of 16 sandflies fed on emulsion of *L. brasiliensis* in immune serum, none became infected. As in the case of *L. tropica* in the fly, the flagellates in positive flies were chiefly of the long type, the round forms seen in cultures being present in small numbers only. The volunteer who had recovered from an *L. tropica* infection was inoculated with *L. brasiliensis* from a sandfly, but no infection occurred.

A strain of *L. infantum* was found to behave in the sandfly in a manner very similar to that of *L. brasiliensis*. Of 73 flies fed only 23 (31 per cent.) became infected, the infection being limited to the stomach.

The authors, as a result of their experiments, express it as their opinion that any *Phlebotomus* sp. in which flagellates of a *Leishmania* sp. are found attached to the epithelium of the cardia, particularly in the neighbourhood of the oesophageal valve, and in which free flagellates ascend the pharynx and buccal cavity, is capable of transmitting that particular species of Leishmania. For this reason they state that they accept the conclusion that *P. argentipes* is the vector of kala azar, in spite of the absence of transmission experiments, just as they would accept the finding of sporozoites in the salivary glands of an *Anopheles* sp. as proof that it is a vector of malaria. [To the reviewer, however, there appears to be this profound difference—anophelines have been proved experimentally on many occasions to transmit malaria by the natural method of feeding, but, up to the present, no single comparable experiment has been made with sandflies and leishmania. It is not yet known how the sandfly transmits leishmania to man so that as yet it is hardly legitimate to make the comparison.]

Experiments were made with two strains of *L. infantum*, one of which, as noted above, behaved in the sandfly like *L. brasiliensis*. The other strain behaved like *L. tropica*. Of 99 sandflies fed on emulsion of flagellates 95 (96 per cent.) were infected. Of 18 fed on emulsion in inactivated immune serum only 9 were positive; and of these 8 had merely a slight infection. From these experiments it would appear that *P. papatasii* is capable of transmitting one of the *L. infantum* strains and not the other, while rats inoculated with the flagellates from the sandflies did not become infected.

C. M. W.

i. Chopra (R. N.), in collaboration with Gupta (J. C.) & David (J. C.). **A Preliminary Note on the Action of Antimony Compounds on the Blood Serum. A New Serum Test for Kala-Azar.**—*Indian Med. Gaz.* 1927. June. Vol. 62. No. 6. pp. 325–327. [1 ref.]

ii. Napier (L. Everard). **A New Serological Test for Kala-Azar.**—*Ibid.* July. Vol. 62. No. 7. pp. 362–365. [2 refs.] [Calcutta School of Trop. Med.]

iii. Chopra (R. N.), Gupta (J. C.) & Basu (N. K.). **Further Observations on the Serum Test for Kala-Azar with Organic Antimony Compounds. A Simple Blood Test for Kala-Azar.**—*Ibid.* Aug. Vol. 62. No. 8. pp. 434–437. With 2 figs. on 1 coloured plate. [2 refs.] [Sch. Trop. Med., Calcutta.]

i. The action of antimony derivatives, especially urea compounds, on the serum of kala azar cases, has led to a new serum test. Serum separated from the blood is pipetted into a Dreyer tube. A 4 per cent. solution of the drug is slowly added along the sides of the tube to form a layer on the top of the serum. If the serum is from a case of kala azar, a thick, flocculent precipitate forms at once, while with other sera there is either no precipitate or only a slight one. The advantage of the test over the aldehyde test is the immediate result and the smallness of the quantity of serum required. It is not necessary to have a freshly prepared solution of the drug.

ii. The reaction is best performed by adding 2 drops of a 24-hour-old serum to 2 cc. of a 0·25 per cent. solution of stiburea, agitating and leaving on the laboratory bench for ten minutes. If the serum is that of a kala azar case a heavy, flocculent precipitate will form and be deposited in 10 minutes, leaving a clear, supernatant fluid. It was interesting to note that the intensity of the reaction with the various drugs tested was in direct proportion to their therapeutic efficiency as worked out by the author. The most efficient drug, von Heyden 693, gave the most intense reaction.

iii. Further observations on the serum antimony test for kala azar are here described, while the test is illustrated by a coloured plate of the appearances in the tubes. It is pointed out that Napier [see above] corroborated the conclusions arrived at by the authors in their preliminary note, but stated that weaker solutions of the drug were preferable and that in most of his observations the serum had been kept in the cool room for 24 hours before the application of the test. The authors believe that it is advantageous to use stronger solutions (1 to 4 per cent.) and that it is unnecessary to keep the serum for 24 hours in the cool room. The test can be applied quite as effectively to fresh serum. The serum of 70 kala azar cases all gave a strongly positive reaction with the antimony test while only 60 gave a strongly positive aldehyde reaction. The sera of 35 lepers were tested. Of these 33 were negative and 2 doubtfully positive. Of 14 malaria cases 13 were definitely negative and 1 moderately positive. Of sera from 10 other cases, one from a case of acute streptococcal dermatitis, one was positive.

In order to make the test easy of application, the following modification has been devised. One or 2 drops of blood from a pricked finger are allowed to flow into a Dreyer tube in which has been placed about 0·25 cc. of a 2 per cent. solution of potassium oxalate. Mixture is effected by inverting the tube. A little of this mixture is transferred to another tube and a 4 per cent. solution of the antimony compound is added along the sides of the tube by means of a capillary pipette so that it sinks below the blood mixture. A flocculent precipitate forms almost immediately at the junction of the two fluids. In very early cases of kala azar the precipitate may take 10 to 15 minutes, very rarely

1 to 2 hours to appear. This test applied to 138 cases, 54 of which were kala azar, showed that all the kala azar cases and those alone gave a positive reaction.

C. M. W.

Ray (Charubrata). **Globulins in Kala-Azar and Syphilis.**—*Calcutta Med. Jl.* 1927. Sept. Vol. 22. No. 3. pp. 115–124. [8 refs.]

The protein constituents of blood serum are: (1) albumin; (2) euglobulin; (3) pseudoglobulin I; (4) pseudoglobulin II. In kala azar the globulin content of the serum is increased and of the three globulins it is the euglobulin which is increased most. In one case of oriental sore there was no such increase. In syphilis there is likewise a globulin increase due mostly to an increase in pseudoglobulin. It appears that the various tests used for the diagnosis of these diseases depend upon the globulin content of the serum. The view is advanced that the Wassermann reaction may in reality be a precipitation reaction, the precipitate being invisible (except in the Kahn reaction) and only demonstrable on the addition of a haemolytic system. It is also possible that the so-called antibody in syphilitic serum is merely a non-specific globulin.

C. M. W.

Quéméner (E.). Contribution à l'étude de la " formol-gélification " dans la syphilis et le kala-azar. [**Formol-Gel Test in Syphilis and Kala Azar.**]—*Bull. Soc. Path. Exot.* 1927. July 13. Vol. 20. No. 7. pp. 600–601. [Karikal Hosp., (French) India.]

Attention is called to the simplicity of the formol-gel test for syphilis and kala azar. The rate of separation of the flocculum is in direct proportion to the virulence of the infection. In severe cases there is a positive result in 15 minutes; half the cases gave a result in 15 to 20 hours; a feeble reaction occurs in 20 to 28 hours. In syphilis the reaction is negative during the first 25 days of infection, as also in cases undergoing treatment. It is positive in 50 per cent. of secondary and tertiary cases of syphilis and is always positive in kala azar. Nearly all cases giving a positive reaction are benefited by anti-syphilitic treatment so that in spite of the fact that the test may be misleading in that it occurs in other diseases it should not be neglected as a guide to the institution of mercurial or arsenical treatment.

C. M. W.

Auricchio (Luigi). Ricerche sierodiagnostiche nella leishmaniosi infantile. [**Serodiagnostic Researches in Infantile Leishmaniasis.**]—*Pediatria.* 1927. July 1. Vol. 35. No. 14. pp. 745–750. [13 refs.] [Univ., Naples.]

A series of 24 cases of infantile kala azar in Italy was investigated serologically for the presence of agglutinins in the blood and the complement fixation. Flagellates from a 10 to 12 days' culture of *L. infantum* were suspended in physiological saline solution. To 1 cc. of the suspension was added 0·05 cc. of serum. The mixture was then kept at 37° C. for 24 hours. No evidence of agglutination was observed.

For the complement fixation test an antigen was prepared from cultures, the flagellates from each tube being suspended in 2 cc. of physiological saline solution. The reaction was positive in 20 of the 24 cases.

C. M. W.

Hu (C. H.) & Cash (J. R.). **Considerations on the Relationship of the Reticulo-Endothelial System to Kala-Azar.**—*Proc. Soc. Experim. Biol. & Med.* 1927. Mar. Vol. 24. No. 6. pp. 469–472. With 2 text figs. [3 refs.]

Working with hamsters suffering from experimental kala azar, it was shown by supravital staining of the cells obtained by spleen puncture that those which contain the parasites had the staining qualities of reticulo-endothelium.

Injection of indian ink intravenously leads to this substance being taken up by cells of the reticulo-endothelial system. When practised on infected animals it is the parasitized cells which ingest the ink. Reticulo-endothelial cells or clasmatocytes are widely distributed in the skin and subcutaneous tissues of infected hamsters and like those in the spleen and other organs contain the parasites. If indian ink is injected subcutaneously it is absorbed by these cells.

C. M. W.

Pittaluga (Gustav). Die "Blockierung" des retikulo-endothelialen Systems bei viszeraler Leishmaniose (Kala-Azar). [**The Blocking of the Reticulo-Endothelial System in Kala Azar.**]—*Arch. f. Schiffs- u. Trop.-Hyg.* 1927. July. Vol. 31. No. 7. pp. 340–345. [Univ. Madrid.]

The author discusses the function of the reticulo-endothelial system in human pathology and draws attention to the fact that in kala azar there is actually a blocking of the system with the parasites. The specific action of antimony in this disease must be brought into relationship with the peculiar susceptibility of the system to metals.

C. M. W.

Acton (Hugh W.) & Napier (L. Everard). **Post-Kala-Azar Dermal Leishmaniasis.**—*Indian Jl. Med. Res.* 1927. July. Vol. 15. No. 1. pp. 97–106. With 21 figs. on 12 plates (3 coloured). [7 refs.] [Calcutta School of Trop. Med. & Hyg.]

Since the autumn of 1925 a number of cases of this affection have been encountered at the out-patient department of the Calcutta School of Tropical Medicine. In this paper are described 44 cases seen during this period. The condition is so characteristic in all its stages that a clinical diagnosis can be made in almost every instance. It is almost certainly a sequel to a generalized infection with *L. donovani*. More than half the patients gave a definite history of kala azar for which they had received treatment, others gave a history of fever of some months duration with enlargement of the spleen, while some gave no history of either fever or kala azar. It would seem that these last can be explained by the existence of a transient and undetected leishmania infection which has cured itself without developing into clinical kala azar. That the skin condition was necessarily preceded by a course of treatment for kala azar is disproved by the fact that

20 of the cases had not been so treated. Of the 24 treated cases 11 had been given sodium antimony tartrate alone, 3 urea stibamine alone and 2 both drugs. In 8 cases the nature of the drug used was not determined.

The skin lesions occur in three distinct types. The first type is that of a depigmented patch which appears usually on the face, neck and exterior surfaces of the forearms, on the inner sides of the thighs and eventually on all parts of the body. When fully developed the patches may be half an inch in diameter. When a history of kala azar and its treatment was given it was noted that the lesions were first observed about a year after completion of the course of treatment. The depigmented patches become raised and eventually develop into nodules giving rise to the second type of lesion. This usually appears about two years after the kala azar treatment. In this stage the disease is frequently mistaken for leprosy. The nodules are soft, yellowish-pink granulomatous growths. They are quite painless and show no tendency to ulceration. In certain rare cases, with a history of about 10 years, a third type of lesion resembling xanthoma develops. As regards the diagnosis leishmania were discovered in 30 of the 44 cases. There is difficulty in finding parasites in the depigmented lesions. In 2 cases a culture of leishmania was obtained from the peripheral blood, which gives a picture of leucocytosis with eosinophilia rather than the leucopenia characteristic of kala azar.

The paper is illustrated by three coloured plates (two showing the character of the depigmented lesions and one the xanthoma-like condition) and a number of photographs giving the appearance of the nodular and other types of lesion.

C. M. W.

Brahmachari (Upendra Nath) & Dutt (Anant Mohan). **Dermal Leishmanoid with Positive Flagellate Culture from the Peripheral Blood.**—*Jl. Trop. Med. & Hyg.* 1927. June 15. Vol. 30. No. 12. pp. 158–159.

The case described is that of a kala azar patient who was incompletely treated with stibosan (von Heyden 471). When seen six weeks later he was evidently still suffering from kala azar as he had a large spleen with fever and leucopenia. In addition he had a well marked nodular eruption over the face, trunk and extremities and pigmented patches over the body. The nodules on the skin showed *Leishmania donovani*, while this parasite was also cultivated from the blood. Treatment with urea stibamine was instituted. The patient was cured of kala azar, but the skin eruption diminished only slowly though bi-weekly intravenous injections of urea stibamine were continued for five months.

C. M. W.

Cash (J. R.) & Hu (C. H.). **Kala-Azar: Demonstration of *Leishmania donovani* in the Skin and Subcutaneous Tissue of Patients: Possible Relation to the Transmission of the Disease.**—*Jl. Amer. Med. Assoc.* 1927. Nov. 5. Vol. 89. No. 19. pp. 1576–1577. With 3 text figs. [1 ref.] [Peking Union Med. College, Peking.]

The authors have discovered that in experimentally infected hamsters the clasmatocytes of the skin are tremendously increased in number and contain numerous leishmania. These parasitized cells form a thick

layer of heavily infected tissue covering each animal, though no change can be seen on the surface of the body even after the hair has been removed. It was thought advisable to examine cases of kala azar from this point of view. Skin from a fatal case was available and sections showed great numbers of clasmatocytes filled with leishmania as in the experimentally infected hamsters. All levels of the skin below the epidermis contain these infected cells. They are collected in large masses about the sweat glands and arterioles and are scattered diffusely throughout the corium, extending even into the papillae just below the epidermis. It is not known from what part of the body the sample of skin came, but the history sheet of the case mentions small brownish, slightly elevated areas on the arms, shoulders and knees. A portion of subcutaneous tissue from another case showed a similar increase of clasmatocytes which were heavily infected with leishmania.

It is pointed out that the occurrence of such large numbers of leishmania in the skin and subcutaneous tissues reveals the first reasonable source from which the infection may be transmitted from one individual to another. Owing to the perivascular arrangement of the infected cells it is very likely that a blood-sucking insect would become contaminated with the parasites. The discovery also raises the question of the occurrence of parasites in the peripheral blood. In many cases the leishmania may have actually come from the skin. The possibility of diagnosis by skin examinations is also mentioned. The authors do not refer to the curious skin eruption which occurs in certain kala azar cases in India, and which is the subject of a paper by Acton reviewed in this number. If skin infection like that described by the authors is of common occurrence in kala azar, then it would be reasonable to suppose that in certain cases visible cutaneous lesions might appear.

C. M. W.

Weiss (Pedro). Die "Espundia," Beitrag zum Studium dieser Hautleishmaniasis in Perú. [**Espundia, Peruvian Dermal Leishmaniasis.**]—*Arch. f. Schiffs- u. Trop.-Hyg.* 1927. July. Vol. 31. No. 7. pp. 311–321. With 7 text figs. [13 refs.]

Cutaneous leishmaniasis in Peru is of two types. The one is a mild disease like oriental sore in that frequently it cures itself. The mucosae may be involved and when this occurs it is the result of contact. The other is a more serious complaint, espundia, which commences as a primary lesion on some exposed part of the skin, extends by involvement of the mucosae and terminates by a more extensive infection of the neighbouring skin. The primary lesion (or lesions, for as many as four may be present) not infrequently commences at some cutaneous wound or abrasion. It develops into an ulcer the nature of which can only be recognized by the discovery of leishmania. Either before, or soon after, or in some cases several years after, the healing of the primary sore the mucosal lesions appear. These develop fairly rapidly and by direct extension lead to involvement of the skin of the face. In two cases the disease had persisted for 8 and 24 years respectively. Pathologically the lesions of espundia are distinguished from other chronic processes such as the syphilitic by three features, viz., a rich plasma cell content, destruction of the lymphatics and blood vessels, and presence of giant cells. As regards treatment the author expresses himself very enthusiastically in favour of tartar emetic in sufficient doses.

C. M. W.

Blanc (Georges) & Caminopetros (J.). Nouvelle enquête sur la répartition du bouton d'Orient en Grèce. Un foyer continental en Laconie-Péloponèse. [**Oriental Sore in the Mainland of Greece.**] —*Ann. Inst. Pasteur.* 1927. Sept. Vol. 41. No. 9. pp. 1002–1021. With 3 figs. (2 maps). [11 refs.]

Though it has been known for many years that oriental sore is endemic in Crete the information as to its occurrence on the mainland of Greece has been less definite. An examination of the Syngros hospital records at Athens led the authors to believe that some of the 60 cases treated there from 1915 to 1926 were instances of infection on the mainland. One case particularly pointed to Neapolis as a centre of infection. A visit to this place and a more extended survey brought to light a number of cases, so that it has been established that in the Department of Laconia oriental sore is endemic and occurs in and around Neapolis, as also in Campos, Cotronas and Lava. The disease has undoubtedly been in existence here for many years.

C. M. W.

i. Pons-Leychard. Chronique du bouton d'Orient en Algérie. Un cas dans l'Oranie du Nord. [**Oriental Sore in Algeria.**]—*Arch. Inst. Pasteur d'Algérie.* 1926. Dec. Vol. 4. No. 4. pp. 573–574.

ii. Gueidon (E.) & Pons-Leychard (A.). Chronique du bouton d'Orient en Algérie. 3 nouveaux cas (29e, 30e et 31e) hors des régions sahariennes.—*Ibid.* 1927. Mar. Vol. 5. No. 1. pp. 22–24. With 1 plate & 1 map. [4 refs.] [Pasteur Inst., Algiers.]

i. A record of a case of oriental sore at Hennaya in northern Algeria, the first to be diagnosed in the department of Oran.

ii. A description of three cases of oriental sore in Algeria outside the Sahara district. Two of these were from the north of the department of Constantine where a number of other cases have occurred and one from the department of Oran where one case (referred to above) has been seen previously.

C. M. W.

Owen (D. Uvedale). **A Case of Oriental Sore.**—*Ann. Trop. Med. & Parasit.* 1927. July 22. Vol. 21. No. 2. pp. 277–280. With 2 figs. on 1 plate.

A man 26 years of age developed a sore on the elbow in Baghdad in September, 1925. This was followed in December by an eruption on the face. In February, 1926, the condition was diagnosed and a series of 20 to 30 injections of tartar emetic commenced. The treatment ended in May, 1926, with no improvement. On July 5th, 1926, he was seen in Liverpool. The face was covered with nodules ranging from 2 to 30 mm. in diameter. Many were ulcerated while others were subcutaneous. The nose, eyelids and ears were involved, as also the neck. On the chest were 4 nodules, while others occurred on the hands, forearms and elbows. On the forehead alone about 80 separate nodules were counted and several were found on the scalp. In all there were about 250 nodules on the face and forehead. Scrapings from sores on the face and elbow revealed

Leishmania tropica in large numbers. Intravenous injections of von Heyden 471 were commenced on the following day and in doses of 0·3 gm. were continued up to the end of September. In all 24 injections, with a total of 7·2 gm., were given. The patient returned to Baghdad in December, 1926, by which date a great improvement had taken place.

C. M. W.

KARAMCHANDANI (P. V.). **An Analysis of 337 Cases of Oriental Sore treated by Various Methods.**—*Indian Med. Gaz.* 1927. Oct. Vol. 62. No. 10. p. 558.

Of the 337 cases, 300 were treated with intravenous injections of tartar emetic. One of the patients became ill after the third injection and died within 72 hours The treatment consisted in the injection of 1 per cent. solution every third day commencing with 5 cc. and increasing to 10. The average time required to effect a cure was 18 days. Cases treated by excision or scraping were 20 in number. The average time for cure was 25 days. Ionization was only a partial success in 5 cases, while X-rays were very successful in another 5 cases, but the time required for cure was 6 weeks. Local treatment with potassium permanganate and tartar emetic ointment in two cases was not very satisfactory. In 5 cases very good results were obtained with berberine sulphate, a dose of a quarter of a grain, dissolved in 1·5 cc. of distilled water and sterilized, being injected subcutaneously into the skin in three places near one side of the sore. In a week's time the treatment was repeated on the other side of the sore. The sore is dressed with hypertonic saline solution. The average time of healing was two weeks.

C. M. W.

BEHDJET (Houloussi). Die Behandlung der Orientbeule mit Diathermie. [**Treatment of Oriental Sore by Diathermy.**]—*Dermat. Woch.* 1927. Apr. 30. Vol. 84. No. 18. pp. 619–621.

In a series of cases of oriental sore, the relative value of treatment by diathermy and carbon dioxide snow was tested. It was found that diathermy preceded by the injection of a local anaesthetic (alypin or novocaine) gave the better results.

C. M. W.

JESSNER (Max). Untersuchungen ueber die Wirkung von Leishmaniavaccine bei experimenteller Hautleishmaniose. [**The Action of Leishmania Vaccine in Experimental Dermal Leishmaniasis.**]—*Arch. f. Dermat. u. Syph.* 1927. Apr. 23. Vol. 153. No. 1. pp. 237–247. With 4 text figs.

In this paper are described in detail experiments which have been the subject of a preliminary communication (this *Bulletin*, Vol. 24, p. 647). The method of preparation of the *Leishmania tropica* vaccines for use in the skin reaction and the immunizing of dogs is given, as also the clinical histories of the animals used. The conclusions reached are the same as those mentioned in the earlier paper.

C. M. W.

Adler (S.) & Theodor (O.). **The Transmission of *Leishmania tropica* from Artificially Infected Sandflies to Man.**—*Ann. Trop. Med. & Parasit.* 1927. July 22. Vol. 21. No. 2. pp. 89–110. With 2 text figs. & 11 figs. on 3 plates. [4 refs.] [Hebrew Univ., Jerusalem.]

Experiments previously conducted by the authors tended to show that the flagellates which develop in *Phlebotomus papatasii* after the ingestion of *Leishmania tropica* only become infective to man when they have reached a certain maturity in the fly (this *Bulletin*, Vol. 24. p. 142). Further experiments in this direction are now recorded. The flies after feeding on the sore were kept for a varying number of days before dissection and inoculation of flagellates into the skin of volunteers. Nine experiments with *L. tropica* which had developed from 2 to 7 days in the sandfly all gave negative results during an observation period of 5 to 15 months. Of 19 experiments with *L. tropica* which had developed from 8 to 21 days, 6 gave a positive result. From these results it is concluded that *L. tropica* undergoes a biological cycle in the fly and that until the cycle is completed all the forms of *L. tropica* in the fly are non-infective for man. The duration of the cycle is 8 days at a temperature of 19° to 23° C.

Fifty laboratory bred sandflies were fed on one of the lesions resulting from the above inoculations. Of these, two became infected. An original naturally occurring strain of *L. tropica* in the sandfly has thus been passed to a human being, back again to a sandfly, again to a human being and still again to a sandfly (*loc. cit.*, p. 142).

A histological examination of the lesions produced in human beings by inoculation of the naturally occurring flagellates of the sandfly has shown that they are identical with those of true oriental sore.

Employing three volunteers unsuccessful attempts were made to transmit oriental sore by the bites of 92 sandflies (89 which had fed on a lesion and 3 on cultures). Of the total thus fed only 5 were subsequently found infected, and those belonged to the 89 which had fed on a lesion.

In the sandflies, as previously reported, the flagellates confine themselves to the midgut and thence pass to the oesophagus, oesophageal diverticulum and pharynx. They avoid the hind gut. The long forms of the flagellate become the dominant type from the fourth day onwards. They are the last to appear in the sandfly, and since they form the overwhelming majority of the types present when the flagellates are infective it is practically certain that they are the infective forms. Owing to what appears to be a failure of the nucleus to divide this structure becomes large in certain flagellates producing a swelling of the body at the point where the nucleus lies. Such forms are a striking feature after the eighth day.

C. M. W.

Parrot (L.) & Donatien (A.). Le parasite du bouton d'Orient chez le phlébotome. Infection naturelle et infection expérimentale de *Phlebotomus papatasi* (Scop.). [**Natural and Experimental Infection of *P. papatasii* with *L. tropica*.**] —*Arch. Inst. Pasteur d'Algérie.* 1927. Mar. Vol. 5. No. 1. pp. 9–21. With 4 plates (1 coloured) & 1 text fig. [5 refs.] [Pasteur Inst., Algiers.]

The authors point out that during May and June, 1922, they attempted to discover leishmania in *Phlebotomus papatasii* in Biskra by inoculating

tubes of NNN medium with the stomach contents of 206 flies and mice with 864 flies. The experiments were entirely negative. The search was again made during September, 1926 with the result that in a series of 181 flies dissected 1 was found to have a stomach infection of a flagellate which was presumably *Leishmania tropica*. It was also demonstrated that there did not occur at Biskra any other species of Phlebotomus which could be mistaken for *P. papatasii*. The only other species were the small *P. minutus* var. *africanus* and the allied and rare *P. fallax*.

Not having available any case of oriental sore on which to feed flies, mice which had been infected in the tail as described in an earlier paper were used (this *Bulletin* Vol. 24, p. 647). The type of lesion produced in these infected mice is illustrated by photographs and a coloured plate. Of 62 *P. papatasii* which fed on such infected mice 17 (25 per cent.) acquired a flagellate infection. In the case of 43 of these flies there was no limit placed on the region of the body on which they could feed and only 6 (14 per cent.) were infected. With 29 of the flies the tail of the mouse alone was exposed to the bites and of these 11 (37 per cent.) were infected. Even here there was the possibility that some of the flies had fed on the healthy part of the tail.

The evolution of the ingested leishmania is very rapid in the fly at 30° C. Even as early as the 16th hour after the feed, well developed flagellates are present. Towards the 36th hour the long forms measuring 16 to 17 microns predominate. Certain forms are very long and narrow, 18 by 1 micron. From the 48th to the 85th hour, with the digestion and disappearance of the blood there is a progressive development of the flagellates towards the long type. As a rule, the infection of the flies was a very heavy one, and was limited entirely to the stomach, especially its anterior part. It was not possible to follow the development beyond the fourth day owing to the death of the flies. Four mice were inoculated in the tail, three with flagellates from 34 to 40 hour flies and one from a 48 hour fly. No infection occurred and it is concluded that the flagellates had not yet reached the infective stage.

C. M. W.

PANJA (Ganapati). **The Production of Oriental Sore in Man by Flagellate Culture of** *Leishmania tropica*.—*Indian Med. Gaz.* 1927. May. Vol. 62. No. 5. p. 250.

On two occasions with an interval of one week 1 cc. of a week-old culture of *Leishmania tropica* was inoculated into the skin of a man who volunteered for the experiment. In about 3 weeks a small nodule had developed at the site of inoculation. This developed in a year into a typical ulcerating sore, in which leishmania were found. A cure was then effected by applications of carbon dioxide snow.

C. M. W.

CHODUKIN (N. I.) & SCHEWTSCHENKO (F. I.). Einige Worte ueber die "Haut-Leischmaniose" der Hunde in Taschkent. [**Dermal Leishmaniasis in Dogs in Tashkent.**]—*Pensée Méd. d' Usbekistane.* Tashkent. 1927. Vol. 1. No. 3–4. German summary p. 235. [In Russian pp. 175–178. 4 refs.]

From a two years' experience in Tashkent, the authors have arrived at the conclusion that cutaneous leishmaniasis of dogs as distinct from

a generalized infection does not exist. All cases of the latter condition show skin lesions, if only an affection of the eyelids, which occurs in 98 per cent. of all the cases. Leishmania were found in the internal organs including the testis. They also occurred in the conjunctiva, in pus from the conjunctival sac and in skin which appeared externally to be healthy.

C. M. W.

Torrademé. [Vorkommen der Aleppobeule im Distrikt von Tortosa.] [**Occurrence of Oriental Sore in Tortosa District, Spain.**]—*Med. Ibera.* Vol. 20. No. 461. p. 169. [Summarized in *Arch. f. Schiffs- u. Trop.-Hyg.* 1927. June. Vol. 31. No. 6. p. 297.]

A disease which has been recognized for 50 years in Perello (Tortosa, Spain) and is known locally as "Llunari" has been demonstrated to be cutaneous leishmaniasis by the discovery of the parasite in the lesions. It occurs only in children and responds to injections of von Heyden's stibenyl and 10 per cent. solution of methylene blue.

C. M. W.

Andrews (Justin M.). **Report of a Case of Oriental Sore in the United States.**—*Amer. Jl. Trop. Med.* 1927. July. Vol. 7. No. 4. pp. 221–224. [9 refs.] [School of Hyg. & Pub. Health, Johns Hopkins Univ., Baltimore, Md.]

An account of a case of oriental sore in a Turkish student who contracted the disease in Diarbekir, Syria. This is the fifth case of the kind to be diagnosed in the United States.

C. M. W.

Fernández Martínez (Fidel). Sobre diagnóstico clínico del kala-azar infantil. [**Clinical Diagnosis of Infantile Kala Azar.**]—*Rev. Méd. de Barcelona.* 1927. June. Year 4. Vol. 7. No. 42. pp. 598–603.

A discussion on the clinical diagnosis of kala azar is concluded by the statement that no case should be diagnosed as leishmaniasis without a parasitological proof.

C. M. W.

Fernández Martínez (Fidel) & García del Diestro (José). El kala-azar en España. [**Kala Azar in Spain.**]—*Semana Méd.* 1927. July 7. Vol. 34. No. 27 (1747). pp. 30–54. [Numerous refs.]

An article of about 30,000 words on the whole subject of kala azar which appears to have been stimulated by the occurrence of the disease in Spain.

C. M. W.

Požariski (Petar F.). Ueber Stibenyl und Stibosan bei Splenomegalia infantum. [**Stibenyl and Stibosan in Infantile Splenomegaly.**]—*Arch. f. Schiffs- u. Trop.-Hyg.* 1927. May. Vol. 31. No. 5. pp. 240–241. [3 refs.]

The author describes two cases of infantile splenomegaly in Yugo-Slavia. He assumes that the disease is kala azar for one of the cases treated with antimony derivatives (stibenyl and stibosan) recovered.

C. M. W.

Basu (Charu Chandra). **A Silver Method of Staining *Leishmania donovani* in the Tissues.**—*Indian Med. Gaz.* 1927. May. Vol. 62. No. 5. pp. 253–254. [3 refs.]

When staining kala azar material for reticular tissue by Gorriz's modification of the Bielchowsky-Cajal method it was noted that the leishmania were well stained.

C. M. W.

Dostrowsky (A.). [Leishmania of the Skin in Palestine.]—*Harefuah.* Jerusalem. 1927. Apr. Vol. 2. No. 2. pp. 382–389. With 7 figs. [In Hebrew.]

REVIEWS AND NOTICES.

MacGregor (Malcolm E.). [Entomologist, Wellcome Field Laboratory, Wisley, Surrey, England; Director, Colonial Office Anti-Malaria Survey of Mauritius (1922–1923), etc.] **Mosquito Surveys. A Handbook for Anti-Malarial and Anti-Mosquito Field Workers.** With Foreword by Sir Ronald Ross, K.C.B., K.C.M.G., F.R.S.—282 pp. With 3 maps & 123 figs. Published for Wellcome Bureau of Scientific Research, 25–28 Endsleigh Gardens, W.C. 1. 1927. London: Baillière, Tindall & Cox, 7 & 8 Henrietta Street, Covent Garden. [15s.]

Half of the descriptive text of this book is taken up with a full—and a very good—account of the mosquitoes of Mauritius and Rodriguez. To those who may object that for a book so widely intended as its sub-title indicates this magnified intervention of the mosquito-fauna of two small islands of the Indian Ocean is a case of πλέον ἤμισυ πάντος, the author would probably reply that it furnishes a good example of the recorded results of a useful entomological survey—as undoubtedly it is.

The other half of the descriptive text is—if the mere ten pages given to antimalaria and antimosquito surveys and mosquito control be deducted—equally divided between (1) the natural characters, natural history, and classification of mosquitoes, and (2) the manipulation of mosquitoes in the laboratory and in the field, and their management in captivity.

In the natural history section is to be found a good account of the anatomy of a mosquito, external and internal, and of the life-history and post-embryonic development of the insect. As insignificant blemishes in a fair field, we notice that insects are here exalted to the rank of a phylum, instead of being kept in their proper station as one of the five classes of a phylum; that the singular form "pleuron" is ill-matched with the plural form "pleurae"; and that the venerable word "trochanter" appears in a dandified disguise as "trochanta."

The section dealing with the practical work of the laboratory, with the rearing and husbandry of mosquitoes, and with the collection of larvae, is excellent, being full of ingenious contrivance and invention for the work bench and the vivarium. Among minor, but not unimportant, points one cannot here approve of water as an alternative to normal saline solution for dissecting an infected mosquito's stomach, nor of borax-carmine as a good stain for showing up oocysts in a stomach-wall.

The ten pages allotted to antimalaria and antimosquito surveys and to mosquito control are not, by the author's own disavowal, intended to be exhaustive, and are, therefore, exempt from criticism. Of mosquito control he touches very briefly the main general principles, referring the reader to books on this particular subject; but it is a relief to encounter an expert who understands, as the author does, that however useful fish are in domestic and artificial waters, they cannot give much assistance to mankind under purely natural conditions. For malaria surveys he deliberately restricts himself to "a few suggestions," and these relate mostly to the composition of the staff and the conduct of some of the necessary entomological detail, including the determination by experiment in the laboratory—which he seems to think is sufficient—of the species of Anopheles that are susceptible to infection.

For all the detail of a mosquito survey, undertaken as one of the essentials of a malaria survey, the worker in the field and the laboratory could not wish a better book than this. But when its author goes on to assert, with axiomatic emphasis, that the responsible chief of an enterprise, so clearly within the domain of sanitation as an antimalaria survey, *must* be a trained entomologist, he must be prepared to meet with dissent. As well might

the zoologist whose studies are essential for the understanding of the natural history of tropical disease assume all the responsibilities of the physician.

A. Alcock.

EVANS (Alwen M.). [M.Sc., Lecturer on Entomology, Liverpool School of Tropical Medicine.] **A Short Illustrated Guide to the Anophelines of Tropical and South Africa.**—Liverpool School of Tropical Medicine Memoir (New Series) No. 3. 78 pp. With 10 text figs. & 12 plates. 1927. Oct. Liverpool: University Press Ltd. London: Hodder and Stoughton Ltd. [7s. 6d. paper; 9s. 6d. cloth.]

Medical and Sanitary Officers (and other dwellers) in Ethiopia should be grateful for this guide, since with its help—and without any abstruse knowledge of entomology—they can distinguish all the known anopheline species of that region and recognize at a glance those that are common and dangerous. Its contents include a key for the rapid discrimination of the several species, a succinct account of the appearance and behaviour of each species, and a series of text-figures and instructive and artistic plates to add transparency to an already lucid text.

The key is illustrated with an enlarged semi-diagrammatic figure of an Anopheles, upon which all the terms employed in the specific discriminations are graphically explained.

In the account of each species is to be found, to begin with, a full diagnosis of the adult and (if possible) a brief diagnosis of the larval form, followed by a summary of what is known respecting its habits, its breeding-places and larval behaviour, its pathogeny, and its geographical distribution. Superfluity of synonymy is avoided, the author generally avouching the authority of CHRISTOPHERS.

The text-figures mostly illustrate diagnostic features of different larvae. Of the plates, 5 illustrate diagnostic characters (of wing, leg, thorax, etc.) of adults, 6 are instructive pictures of breeding-places, and one is a formidable enlarged portrait of the ubiquitous and dangerous *Anopheles costalis*.

A. Alcock.

CARTER (Henry F.). **Report on Malaria and Anopheline Mosquitoes in Ceylon.**—*Ceylon. Sessional Paper VII.—1927. Mar.*—84 pp. With 10 maps, 21 charts & 34 figs. on 9 plates. 1927. Colombo.

This Report deals comprehensively with the Anophelines of Ceylon, and the prevalence of malaria in different parts of that island. The first Part discusses the work which had previously been done in Ceylon, and also the environment (climate, physiography, population, etc.). Part II relates to malaria, its seasonal and geographical distribution; the relative frequency of the different species of malaria parasite; the spleen rate, and its relation to age. The third Part is devoted to the indigenous species of Anopheles; in it we find the differential characters of adults and larvae; their distribution in Ceylon, and the relationship of the several species to the local prevalence of malaria. Special sections describe the natural enemies of Anopheles, and the species of that genus which breed in rice fields. The concluding Parts describe three local campaigns against malaria, and make recommendations for the future. The Appendix contains a mass of tabulated statistics, which will be of value to the worker in Ceylon, and which was rightly excluded from the text.

From this bald summary it will be realized that Mr. Carter has studied nearly every aspect of malaria and its vectors. The problem of malaria in

Ceylon is one of great complexity and difficulty, as the country itself is varied in structure and as some sixteen to eighteen species of Anopheles occur in it. One can here discuss only a few of the facts which are placed on record in this interesting work.

The centre of the southern part of Ceylon is high, much of it over 3,000 feet; it is crossed by lat. 7° N. On the slopes of the highlands above 1,600 feet malaria is only of moderate intensity, the spleen rate is below 5 per cent.; but in certain places between 1,600 and 3,000 feet spleen rates up to 20 per cent. occur, and the malaria in these places is apparently due in the main to *Anopheles maculatus*. Above 3,000 feet spleen rates are below 5 per cent., though *A. maculatus* remains common, and though there are plenty of villagers. It appears, therefore, that this species of Anopheles is only a major carrier in Ceylon when it occurs below a certain altitude; this in turn may be presumed to mean when the temperature is above a certain (unknown) point. But this is not consistent with our knowledge of what occurs in other countries; for the same species of Anopheles carries malaria successfully at 5 to 6,000 feet at Shillong (SHORTT), which is much further from the equator than any part of Ceylon, and therefore presumably colder, even in summer. In other parts of the world other species cause malaria at even greater altitudes; *A. willmori* and *plumbeus* are successful carriers at 7,500 feet at Murree (GILL); *A. gambiae* (*costalis*) has recently caused grave outbreaks of malaria in Kenya up to 6,000 feet; and indigenous malaria occurs at a height of about 9,000 feet at Quito, according to CHRISTOPHERS.

There is another unexpected fact in the distribution of malaria in Ceylon, though in this case it seems easier to explain the apparent anomaly. The north of Ceylon is all below 600 feet; the annual rainfall is between 50 and 75 inches,* and the rainfall is evenly distributed through the year. The centre and south of the island contains a rounded mass of mountain and plateau, much of it above 3,000 feet, and this area catches the S.W. monsoon, and receives a heavy rainfall with a definite seasonal maximum in June and July; the annual rainfall in this part of the island is between 100 and 200 inches.* The southern part of Ceylon, whether plain or hill, is on the whole much more densely populated than the north. But it is the northern, relatively dry, part of the island in which malaria is most grave; in this area the "Fever Group Death Rates" are between 8 and 15 per 1,000, and the spleen rates in children generally over 40 per cent. and in large areas over 60 per cent.* In the southern part of the island, where the population is denser and the rainfall heavier, the "Fever Group Death Rates" are between 4 and 10, the spleen rates below 5 per cent. in a large area, and even in the wet submontane zone not higher than from 10 to 20 per cent.

These curious facts are explained by studying the distribution of the species of Anopheles. In the wet areas, where malaria is less, the prevalent species are *A. subpictus, jamesi, barbirostris,* and *hyrcanus,* and the larvae of these four make up nearly 98 per cent. of all larvae identified; these species are rural, breeding in swamps, and apparently relatively harmless. In the north, where there is less surface water and much more malaria, the above four species only account for 71 per cent. of all larvae, and the larvae of four dangerous species (*A. listoni, culicifacies, fuliginosus* and *maculatus*) are a dozen times more prevalent than they are in the south; the increased prevalence of these species was mainly due to a very great increase in the relative frequency of *A. listoni*. In the dry but malarious zone agriculture is only possible by the aid of irrigation; the irrigation channels and the "tanks" provide permanent water in which the four dangerous species, and especially *A. listoni*, breed. In this fact, and perhaps also in the greater poverty of the people in the drier parts of Ceylon, lies the explanation of the apparent anomaly in the distribution of the disease.

In this Report, as in much other recent work, it is interesting to notice

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* It is to be understood that these are broad generalizations only; for complete data see the maps and tables of the Report.

the increase in the use of actual measurements and the introduction of new units. Mr. Carter worked at 72 " stations ; " at each he studied the Anophelines in six or eight " situations " (paddy, stream, tank, etc.), and in each sitaation he took 50 " samples," when it was possible. He presents his results in term of the number of larvae of each species per 100 standardized samples, the hundred samples being equally divided among the situations actually studied in each station.

The reader will find certain points to criticize, for which one cannot hold the author responsible. The great mass of data relating to climate in all parts of the world has been accumulated by meteorologists, and their objective is the study of the dynamics of the atmosphere. We biologists care nothing for that, but want to know about climate as it affects man, animal, or plant ; we must therefore accumulate facts for ourselves. Shade temperatures taken in a double-louvred screen and rain measured in a gauge in the middle of an open space are of slight interest to us. It is essential that we study the conditions in the swamp and the forest, the cow-shed and the house ; we must, moreover, study a great range of climatic factors—among others, solar radiant heat, the seasonal incidence of ultra-violet radiation, the intensity of light, the prevalence of different *types* of rainfall (for it is clear that an inch of rain falling in half an hour is, biologically, entirely different from the same quantity of rain spread over twenty-four hours). One does not for a moment criticize the author for failing to do what has not yet been done anywhere in the tropics ; but we do call attention to a grave deficiency in knowledge and in the biologists' vision of what should be done. Turning to the present Report, the occasional reader would find it much more easy to grasp the work which has been done if a fuller summary (with page references to the body of the text) had been printed. The tables would be more easy to understand if the explanatory headings were a little longer ; it is a pity that some altitudes are given in feet, others in metres.

The illustrations from photographs are admirable, and the ten maps add greatly to the value and interest of the report. But it is not easy to use the maps, for nearly all of them are folded, in spite of the fact that the pages are $13\frac{1}{2}$ by $8\frac{1}{4}$ inches, which would have been large enough if the maps had been a little reduced in size. The headings and explanations are so placed that each map must be unfolded before one can discover what is on it. We think also that the Report is worthy of rather better type than it has received.

P. A. Buxton.